



**Data Summary Report
IHSS Groups 300-3 and 300-4**

UBC 371 and UBC 374



August 2003

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**Draft Data Summary Report
IHSS Group 300-3 and 300-4**

UBC 371 and UBC 374

Approval received from the Colorado Department of Public Health and Environment

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Approval letter contained in the Administrative Record.

August 2003

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ACRONYMS

AL	action level
AR	Administrative Record
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CDPHE	Colorado Department of Public Health and Environment
COC	contaminant of concern
DL	Detection Limit
DOE	U.S. Department of Energy
DQA	Data Quality Assessment
DQO	Data Quality Objective
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
ft	feet
HPGe	high-purity germanium
HRR	Historical Release Report
IASAP	Industrial Area Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
K-H	Kaiser-Hill Company, L.L.C.
LCS	laboratory control sample
MS	matrix spike
MSD	matrix spike duplicate
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
N/A	not applicable
NFAA	no further accelerated action
PARCCS	precision, accuracy, representativeness, completeness, comparability, and sensitivity
pCi/g	picocuries per gram
QC	quality control
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RIN	report identification number
RL	reporting limit
RPD	relative percent difference
SBD	soil beginning depth
SD	standard deviation
SED	soil end depth
SOR	sum of ratio
SVOC	semi-volatile organic compound
UBC	Under Building Contamination
VOC	volatile organic compound
V&V	verification and validation
WRW	Wildlife Refuge Worker

1.0 INTRODUCTION

This Data Summary Report summarizes characterization activities conducted at Individual Hazardous Substance Site (IHSS) Groups 300-3 and 300-4 at the Rocky Flats Environmental Technology Site (RFETS) in Golden, Colorado. Characterization activities were planned and executed in accordance with the Industrial Area Sampling and Analysis Plan (IASAP) (DOE 2001) and IASAP Addendum #IA-03-01 (DOE 2002). The two groups were combined because the Under Building Contamination (UBC) sites are adjacent to each other and required similar characterization efforts.

IHSS Groups 300-3 and 300-4 shown on Figure 1, and individual UBC sites are listed in Table 1.

Table 1
Description of IHSS Groups 300-3 and 300-4

IHSS Group	IHSS/PAC/UBC Site
300-3	UBC 371 – New Plutonium Recovery Facility
300-4	UBC 374 – Wastewater Treatment Facility

Approval of this Data Summary Report constitutes regulatory agency concurrence that these IHSS Groups are No Further Accelerated Action (NFAA) sites. This information and NFAA determinations will be documented in the FY03 Historical Release Report (HRR).

2.0 SITE CHARACTERIZATION

Information on IHSS Groups 300-3 and 300-4 consists of historical knowledge (DOE 1992-2002), historical data, and recent characterization sample results. Historical soil sampling locations are shown on Figure 2. Included on this figure are data greater than background means plus two standard deviations or reporting limits (RLs). Only surface soil data were available for the area. Specifications associated with the recent soil sampling, including sampling locations, are described in IASAP Addendum #IA-03-01 (DOE 2002) and listed in Table 2. Analytical results greater than background means plus two standard deviations or RLs, for analytes with Rocky Flats Cleanup Agreement (RFCA) action levels (ALs), are presented in Table 3. A summary of analytical statistics, by analyte, is presented in Table 4. The raw and quality control data as of June 26, 2003 are enclosed on a compact disc, and related correspondence is included in Appendix A of this data summary.

In accordance with the IASAP, soil beneath the building slabs is considered subsurface soil. Therefore, subsurface soil background values are used for comparison, and analytical results are evaluated as part of the Subsurface Soil Risk Screen in Section 4.0.

Table 2
IHSS Groups 300-3 and 300-4 Characterization Sampling Specifications

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Laboratory Method	Offsite Laboratory Method
300-3	UBC 371 – New Plutonium Recovery Facility	BW46-000A	2082108.217	750628.596	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW46-000A	2082108.217	750628.596	Surface Soil	0-0.5'	Metals	6200	6010
		BW46-000A	2082108.217	750628.596	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW46-000A	2082108.217	750628.596	Surface Soil	0-0.5'	VOCs	8260	8260
		BW46-001A	2082070.001	750568.823	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW46-001A	2082070.001	750568.823	Surface Soil	0-0.5'	Metals	6200	6010
		BW46-001A	2082070.001	750568.823	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW46-001A	2082070.001	750568.823	Surface Soil	0-0.5'	VOCs	8260	8260
		BW45-000A	2082104.297	750506.110	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW45-000A	2082104.297	750506.110	Surface Soil	0-0.5'	Metals	6200	6010
		BW45-000A	2082104.297	750506.110	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW45-000A	2082104.297	750506.110	Surface Soil	0-0.5'	VOCs	8260	8260
		BW45-001A	2082104.297	750506.110	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW45-001A	2082104.297	750506.110	Surface Soil	0-0.5'	Metals	6200	6010
		BW45-001A	2082104.297	750506.110	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW45-001A	2082104.297	750506.110	Surface Soil	0-0.5'	VOCs	8260	8260
		BW45-002A	2082099.398	750381.664	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW45-002A	2082099.398	750381.664	Surface Soil	0-0.5'	Metals	6200	6010
		BW45-002A	2082099.398	750381.664	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW45-002A	2082099.398	750381.664	Surface Soil	0-0.5'	VOCs	8260	8260
		BX45-000A	2082137.614	750443.397	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX45-000A	2082137.614	750443.397	Surface Soil	0-0.5'	Metals	6200	6010
		BX45-000A	2082137.614	750443.397	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX45-000A	2082137.614	750443.397	Surface Soil	0-0.5'	VOCs	8260	8260
		BX45-001A	2082170.930	750383.624	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Laboratory Method	Offsite Laboratory Method
		BX45-001A	2082170.930	750383.624	Surface Soil	0-0.5'	Metals	6200	6010
		BX45-001A	2082170.930	750383.624	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX45-001A	2082170.930	750383.624	Surface Soil	0-0.5'	VOCs	8260	8260
		BX45-002A	2082175.829	750504.150	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX45-002A	2082175.829	750504.150	Surface Soil	0-0.5'	Metals	6200	6010
		BX45-002A	2082175.829	750504.150	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX45-002A	2082175.829	750504.150	Surface Soil	0-0.5'	VOCs	8260	8260
		BX46-000A	2082142.513	750567.843	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX46-000A	2082142.513	750567.843	Surface Soil	0-0.5'	Metals	6200	6010
		BX46-000A	2082142.513	750567.843	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX46-000A	2082142.513	750567.843	Surface Soil	0-0.5'	VOCs	8260	8260
		BX46-001A	2082179.749	750629.576	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX46-001A	2082179.749	750629.576	Surface Soil	0-0.5'	Metals	6200	6010
		BX46-001A	2082179.749	750629.576	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX46-001A	2082179.749	750629.576	Surface Soil	0-0.5'	VOCs	8260	8260
		BX46-002A	2082214.045	750564.904	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX46-002A	2082214.045	750564.904	Surface Soil	0-0.5'	Metals	6200	6010
		BX46-002A	2082214.045	750564.904	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX46-002A	2082214.045	750564.904	Surface Soil	0-0.5'	VOCs	8260	8260
		BX45-003A	2082248.341	750502.191	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX45-003A	2082248.341	750502.191	Surface Soil	0-0.5'	Metals	6200	6010
		BX45-003A	2082248.341	750502.191	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX45-003A	2082248.341	750502.191	Surface Soil	0-0.5'	VOCs	8260	8260
		BX45-004A	2082210.125	750441.438	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX45-004A	2082210.125	750441.438	Surface Soil	0-0.5'	Metals	6200	6010
		BX45-004A	2082210.125	750441.438	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX45-004A	2082210.125	750441.438	Surface Soil	0-0.5'	VOCs	8260	8260

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Laboratory Method	Offsite Laboratory Method
		BX45-005A	2082244.421	750383.624	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX45-005A	2082244.421	750383.624	Surface Soil	0-0.5'	Metals	6200	6010
		BX45-005A	2082244.421	750383.624	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX45-005A	2082244.421	750383.624	Surface Soil	0-0.5'	VOCs	8260	8260
		BX45-006A	2082281.657	750437.518	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX45-006A	2082281.657	750437.518	Surface Soil	0-0.5'	Metals	6200	6010
		BX45-006A	2082281.657	750437.518	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX45-006A	2082281.657	750437.518	Surface Soil	0-0.5'	VOCs	8260	8260
		BX46-003A	2082286.556	750561.964	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX46-003A	2082286.556	750561.964	Surface Soil	0-0.5'	Metals	6200	6010
		BX46-003A	2082286.556	750561.964	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX46-003A	2082286.556	750561.964	Surface Soil	0-0.5'	VOCs	8260	8260
		BX46-004A	2082250.301	750626.636	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX46-004A	2082250.301	750626.636	Surface Soil	0-0.5'	Metals	6200	6010
		BX46-004A	2082250.301	750626.636	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX46-004A	2082250.301	750626.636	Surface Soil	0-0.5'	VOCs	8260	8260
		BX46-005A	2082324.772	750623.697	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX46-005A	2082324.772	750623.697	Surface Soil	0-0.5'	Metals	6200	6010
		BX46-005A	2082324.772	750623.697	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX46-005A	2082324.772	750623.697	Surface Soil	0-0.5'	VOCs	8260	8260
		BX45-007A	2082319.873	750498.271	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX45-007A	2082319.873	750498.271	Surface Soil	0-0.5'	Metals	6200	6010
		BX45-007A	2082319.873	750498.271	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BX45-007A	2082319.873	750498.271	Surface Soil	0-0.5'	VOCs	8260	8260
		BX45-008A	2082314.973	750373.825	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BX45-008A	2082314.973	750373.825	Surface Soil	0-0.5'	Metals	6200	6010
		BX45-008A	2082314.973	750373.825	Surface Soil	0-0.5'	SVOCs	N/A	8270

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Laboratory Method	Offsite Laboratory Method
		BX45-008A	2082314.973	750373.825	Surface Soil	0-0.5'	VOCs	8260	8260
		BY45-000A	2082354.169	750435.558	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BY45-000A	2082354.169	750435.558	Surface Soil	0-0.5'	Metals	6200	6010
		BY45-000A	2082354.169	750435.558	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY45-000A	2082354.169	750435.558	Surface Soil	0-0.5'	VOCs	8260	8260
		BY45-001A	2082387.485	750371.866	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BY45-001A	2082387.485	750371.866	Surface Soil	0-0.5'	Metals	6200	6010
		BY45-001A	2082387.485	750371.866	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY45-001A	2082387.485	750371.866	Surface Soil	0-0.5'	VOCs	8260	8260
		BY45-002A	2082427.660	750432.619	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BY45-002A	2082427.660	750432.619	Surface Soil	0-0.5'	Metals	6200	6010
		BY45-002A	2082427.660	750432.619	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY45-002A	2082427.660	750432.619	Surface Soil	0-0.5'	VOCs	8260	8260
		BY45-003A	2082390.425	750495.331	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BY45-003A	2082390.425	750495.331	Surface Soil	0-0.5'	Metals	6200	6010
		BY45-003A	2082390.425	750495.331	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY45-003A	2082390.425	750495.331	Surface Soil	0-0.5'	VOCs	8260	8260
		BY46-000A	2082356.129	750561.964	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BY46-000A	2082356.129	750561.964	Surface Soil	0-0.5'	Metals	6200	6010
		BY46-000A	2082356.129	750561.964	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY46-000A	2082356.129	750561.964	Surface Soil	0-0.5'	VOCs	8260	8260
		BY46-001A	2082396.304	750621.737	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BY46-001A	2082396.304	750621.737	Surface Soil	0-0.5'	Metals	6200	6010
		BY46-001A	2082396.304	750621.737	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY46-001A	2082396.304	750621.737	Surface Soil	0-0.5'	VOCs	8260	8260
		BY45-004A	2082431.580	750556.085	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BY45-004A	2082431.580	750556.085	Surface Soil	0-0.5'	Metals	6200	6010

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Laboratory Method	Offsite Laboratory Method
		BY45-004A	2082431.580	750556.085	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY45-004A	2082431.580	750556.085	Surface Soil	0-0.5'	VOCs	8260	8260
		BY46-002A	2082468.816	750616.838	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BY46-002A	2082468.816	750616.838	Surface Soil	0-0.5'	Metals	6200	6010
		BY46-002A	2082468.816	750616.838	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY46-002A	2082468.816	750616.838	Surface Soil	0-0.5'	VOCs	8260	8260
		BY45-005A	2082462.936	750493.372	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BY45-005A	2082462.936	750493.372	Surface Soil	0-0.5'	Metals	6200	6010
		BY45-005A	2082462.936	750493.372	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY45-005A	2082462.936	750493.372	Surface Soil	0-0.5'	VOCs	8260	8260
		BY45-006A	2082499.192	750429.679	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
	UBC 374 – Wastewater Treatment Facility (biased samples)	BY45-006A	2082499.192	750429.679	Surface Soil	0-0.5'	Metals	6200	6010
		BY45-006A	2082499.192	750429.679	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY45-006A	2082499.192	750429.679	Surface Soil	0-0.5'	VOCs	8260	8260
		BY45-007A	2082504.092	750552.165	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BY45-007A	2082504.092	750552.165	Surface Soil	0-0.5'	Metals	6200	6010
		BY45-007A	2082504.092	750552.165	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY45-007A	2082504.092	750552.165	Surface Soil	0-0.5'	VOCs	8260	8260
		BY45-008A	2082535.448	750490.432	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BY45-008A	2082535.448	750490.432	Surface Soil	0-0.5'	Metals	6200	6010
		BY45-008A	2082535.448	750490.432	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BY45-008A	2082535.448	750490.432	Surface Soil	0-0.5'	VOCs	8260	8260
		BZ45-000A	2082573.664	750548.245	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BZ45-000A	2082573.664	750548.245	Surface Soil	0-0.5'	Metals	6200	6010
		BZ45-000A	2082573.664	750548.245	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BZ45-000A	2082573.664	750548.245	Surface Soil	0-0.5'	VOCs	8260	8260

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Laboratory Method	Offsite Laboratory Method
		BZ45-001A	2082608.940	75048.8.472	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BZ45-001A	2082608.940	75048.8.472	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BZ45-001A	2082608.940	75048.8.472	Surface Soil	0-0.5'	Metals	6200	6010
		BZ45-001A	2082608.940	75048.8.472	Surface Soil	0-0.5'	VOCs	8260	8260
		BZ45-002A	2082647.155	750549.225	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BZ45-002A	2082647.155	750549.225	Surface Soil	0-0.5'	Metals	6200	6010
		BZ45-002A	2082647.155	750549.225	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BZ45-002A	2082647.155	750549.225	Surface Soil	0-0.5'	VOCs	8260	8260
		BZ45-003A	2082707.908	750548.245	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BZ45-003A	2082707.908	750548.245	Surface Soil	0-0.5'	Metals	6200	6010
		BZ45-003A	2082707.908	750548.245	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BZ45-003A	2082707.908	750548.245	Surface Soil	0-0.5'	VOCs	8260	8260
		BW46-002C	2082117.036	750658.973	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
		BW46-002C	2082117.036	750658.973	Subsurface Soil	2.5'-4.5'	Metals	6200	6010
		BW46-002C	2082117.036	750658.973	Subsurface Soil	2.5'-4.5'	SVOCs	N/A	8270
371/374 Utility Drains		BW46-002C	2082117.036	750658.973	Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		BW45-003C	2082050.403	750514.929	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
		BW45-003C	2082050.403	750514.929	Subsurface Soil	2.5'-4.5'	Metals	6200	6010
		BW45-003C	2082050.403	750514.929	Subsurface Soil	2.5'-4.5'	SVOCs	N/A	8270
		BW45-003C	2082050.403	750514.929	Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		BW45-004C	2082050.403	750493.372	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
		BW45-004C	2082050.403	750493.372	Subsurface Soil	2.5'-4.5'	Metals	6200	6010
		BW45-004C	2082050.403	750493.372	Subsurface Soil	2.5'-4.5'	SVOCs	N/A	8270
		BW45-004C	2082050.403	750493.372	Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		BW45-005C	2082066.082	750433.599	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
		BW45-005C	2082066.082	750433.599	Subsurface Soil	2.5'-4.5'	Metals	6200	6010
		BW45-005C	2082066.082	750433.599	Subsurface Soil	2.5'-4.5'	SVOCs	N/A	8270

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Laboratory Method	Offsite Laboratory Method
		BW45-005C	2082066.082	750433.599	Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		BX44-000C	2082289.496	7504361.087	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
		BX44-000C	2082289.496	7504361.087	Subsurface Soil	2.5'-4.5'	Metals	6200	6010
		BX44-000C	2082289.496	7504361.087	Subsurface Soil	2.5'-4.5'	SVOCs	N/A	8270
		BX44-000C	2082289.496	7504361.087	Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		BY46-003C	2082404.143	750628.596	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
		BY46-003C	2082404.143	750628.596	Subsurface Soil	2.5'-4.5'	Metals	6200	6010
		BY46-003C	2082404.143	750628.596	Subsurface Soil	2.5'-4.5'	SVOCs	N/A	8270
		BY46-003C	2082404.143	750628.596	Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		BY46-004C	2082494.293	750602.139	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
		BY46-004C	2082494.293	750602.139	Subsurface Soil	2.5'-4.5'	Metals	6200	6010
		BY46-004C	2082494.293	750602.139	Subsurface Soil	2.5'-4.5'	SVOCs	N/A	8270
		BY46-004C	2082494.293	750602.139	Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		BY45-009C	2082520.750	750430.659	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
		BY45-009C	2082520.750	750430.659	Subsurface Soil	2.5'-4.5'	Metals	6200	6010
		BY45-009C	2082520.750	750430.659	Subsurface Soil	2.5'-4.5'	SVOCs	N/A	8270
		BY45-009C	2082520.750	750430.659	Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		BZ46-000C	2082659.894	750601.159	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
		BZ46-000C	2082659.894	750601.159	Subsurface Soil	2.5'-4.5'	Metals	6200	6010
		BZ46-000C	2082659.894	750601.159	Subsurface Soil	2.5'-4.5'	SVOCs	N/A	8270
		BZ46-000C	2082659.894	750601.159	Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		BZ45-004C	2082657.934	750415.961	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
		BZ45-004C	2082657.934	750415.961	Subsurface Soil	2.5'-4.5'	Metals	6200	6010
		BZ45-004C	2082657.934	750415.961	Subsurface Soil	2.5'-4.5'	SVOCs	N/A	8270
		BZ45-004C	2082657.934	750415.961	Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		BZ45-005E	2082550.260	750448.241	Subsurface Soil	6.5'-8.0'	Radionuclides	HPGe	Alpha Spec
		BZ45-005E	2082550.260	750448.241	Subsurface Soil	6.5'-8.0'	Metals	6200	6010

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Laboratory Method	Offsite Laboratory Method
		BZ45-005E	2082550.260	750448.241	Subsurface Soil	6.5'-8.0'	SVOCs	N/A	8270
		BZ45-005E	2082550.260	750448.241	Subsurface Soil	6.5'-8.0'	VOCs	8260	8260

SVOC - semi-volatile organic compound

VOC - volatile organic compound

Table 3

IHSS Groups 300-3 and 300-4 Soil Results Greater Than Background Means Plus Two Standard Deviations or Reporting Limits

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRWAL	ECO AL	Background
BW45-000	750506.11	2082104.3	0.0	0.5	BARIUM	499	MG/KG	98.000	26400	--	289.38
BW45-000	750506.11	2082104.3	0.0	0.5	COPPER	97.3	MG/KG	4.000	40900	--	38.21
BW45-000	750506.11	2082104.3	0.0	0.5	Uranium-235	0.2367	PCI/G	0.151	8	1900	0.12
BW45-000	750506.11	2082104.3	0.0	0.5	Uranium-238	4.797	PCI/G	1.946	351	1600	1.49
BW45-000	750506.11	2082104.3	0.0	0.5	VANADIUM	170	MG/KG	31.000	7150	433	88.49
BW45-001	750444.38	2082070	0.0	0.5	BARIUM	462	MG/KG	98.000	26400	--	289.38
BW45-001	750444.38	2082070	0.0	0.5	COPPER	44	MG/KG	4.000	40900	--	38.21
BW45-001	750444.38	2082070	0.0	0.5	Uranium-235	0.2361	PCI/G	0.177	8	1900	0.12
BW45-001	750444.38	2082070	0.0	0.5	Uranium-238	3.944	PCI/G	1.953	351	1600	1.49
BW45-001	750444.38	2082070	0.0	0.5	VANADIUM	168	MG/KG	31.000	7150	433	88.49
BW45-002	750381.66	2082099.4	0.0	0.5	BARIUM	544	MG/KG	98.000	26400	--	289.38
BW45-002	750381.66	2082099.4	0.0	0.5	COPPER	44.5	MG/KG	4.000	40900	--	38.21
BW45-002	750381.66	2082099.4	0.0	0.5	Uranium-235	0.2522	PCI/G	0.150	8	1900	0.12
BW45-002	750381.66	2082099.4	0.0	0.5	Uranium-238	5.19	PCI/G	2.098	351	1600	1.49
BW45-002	750381.66	2082099.4	0.0	0.5	VANADIUM	169	MG/KG	31.000	7150	433	88.49
BW45-003	750550.68	2082052.17	0	0.5	ARSENIC	11.1	MG/KG	5	22.2	21.6	10.090
BW45-003	750550.68	2082052.17	0.5	2.5	ARSENIC	13.3	MG/KG	5.000	22.2	21.6	13.14
BW45-003	750550.68	2082052.17	0	0.5	BARIUM	717	MG/KG	98	26400	--	141.260
BW45-003	750550.68	2082052.17	0.5	2.5	BARIUM	932	MG/KG	98.000	26400	--	289.38
BW45-003	750550.68	2082052.17	2.5	4.5	BARIUM	862	MG/KG	98.000	26400	--	289.38
BW45-003	750550.68	2082052.17	0	0.5	CHROMIUM	45.9	MG/KG	20	268	--	16.990
BW45-003	750550.68	2082052.17	0	0.5	COPPER	64.6	MG/KG	4	40900	--	18.060
BW45-003	750550.68	2082052.17	0.5	2.5	COPPER	49.5	MG/KG	4.000	40900	--	38.21
BW45-003	750550.68	2082052.17	2.5	4.5	COPPER	43.1	MG/KG	4.000	40900	--	38.21
BW45-003	750550.68	2082052.17	0	0.5	IRON	36500	MG/KG	2190	307000	--	18037.000

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW AL	ECO AL	Background
BW45-003	750550.68	2082052.17	0	0.5	MANGANESE	393	MG/KG	158	3480	--	365.080
BW45-003	750550.68	2082052.17	0	0.5	NICKEL	50.7	MG/KG	12	20400	--	14.910
BW45-003	750550.68	2082052.17	0	0.5	STRONTIUM	158	MG/KG	20	613000	--	48.940
BW45-003	750550.68	2082052.17	2.5	4.5	Uranium -238	4.294	PCI/G	1.652	351	1600	1.49
BW45-003	750550.68	2082052.17	0	0.5	Uranium-235	0.271	PCI/G	0.152849	8	1900	0.094
BW45-003	750550.68	2082052.17	0.5	2.5	Uranium-235	0.1819	PCI/G	0.163	8	1900	0.12
BW45-003	750550.68	2082052.17	2.5	4.5	Uranium-235	0.2218	PCI/G	0.107	8	1900	0.12
BW45-003	750550.68	2082052.17	0	0.5	Uranium-238	4.169	PCI/G	1.597962	351	1600	2.000
BW45-003	750550.68	2082052.17	0.5	2.5	Uranium-238	4.108	PCI/G	1.808	351	1600	1.49
BW45-003	750550.68	2082052.17	0	0.5	VANADIUM	171	MG/KG	31	7150	433	45.590
BW45-003	750550.68	2082052.17	0.5	2.5	VANADIUM	129	MG/KG	31.000	7150	433	88.49
BW45-003	750550.68	2082052.17	2.5	4.5	VANADIUM	142	MG/KG	31.000	7150	433	88.49
BW45-003	750550.68	2082052.17	0	0.5	ZINC	100	MG/KG	9	307000	--	73.760
BW45-004	750441.01	2082050.09	0	0.5	ARSENIC	10.4	MG/KG	5	22.2	21.6	10.090
BW45-004	750441.01	2082050.09	0	0.5	BARIUM	821	MG/KG	98	26400	--	141.260
BW45-004	750441.01	2082050.09	0.5	2.5	BARIUM	893	MG/KG	98.000	26400	--	289.38
BW45-004	750441.01	2082050.09	2.5	4.5	BARIUM	753	MG/KG	98.000	26400	--	289.38
BW45-004	750441.01	2082050.09	2.5	4.5	BENZO(A)ANTHRACENE	59	UG/KG	45.000	34900	800000	NA
BW45-004	750441.01	2082050.09	0	0.5	CHROMIUM	52.2	MG/KG	20	268	--	16.990
BW45-004	750441.01	2082050.09	2.5	4.5	CHRYSENE	49	UG/KG	39.000	3490000	--	NA
BW45-004	750441.01	2082050.09	0	0.5	COPPER	44.8	MG/KG	4	40900	--	18.060
BW45-004	750441.01	2082050.09	0	0.5	FLUORANTHENE	110	UG/KG	47	27000000	--	NA
BW45-004	750441.01	2082050.09	2.5	4.5	FLUORANTHENE	130	UG/KG	45.000	27000000	--	NA
BW45-004	750441.01	2082050.09	0	0.5	IRON	35500	MG/KG	2190	307000	--	18037.000
BW45-004	750441.01	2082050.09	0	0.5	MANGANESE	483	MG/KG	158	3480	--	365.080
BW45-004	750441.01	2082050.09	0	0.5	NICKEL	45.9	MG/KG	12	20400	--	14.910
BW45-004	750441.01	2082050.09	0	0.5	PYRENE	89	UG/KG	67	22000000	--	NA
BW45-004	750441.01	2082050.09	2.5	4.5	PYRENE	110	UG/KG	65.000	22000000	--	NA

Location	Northing	Basting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW AL	ECO AL	Background
BW45-004	750441.01	2082050.09	0	0.5	STRONTIUM	272	MG/KG	20	613000	--	48.940
BW45-004	750441.01	2082050.09	0	0.5	Uranium-235	0.2318	PCI/G	0.171143	8	1900	0.094
BW45-004	750441.01	2082050.09	0.5	2.5	Uranium-235	0.1784	PCI/G	0.142	8	1900	0.12
BW45-004	750441.01	2082050.09	2.5	4.5	Uranium-235	0.2545	PCI/G	0.151	8	1900	0.12
BW45-004	750441.01	2082050.09	0	0.5	Uranium-238	4.528	PCI/G	1.972902	351	1600	2.000
BW45-004	750441.01	2082050.09	0.5	2.5	Uranium-238	3.628	PCI/G	1.902	351	1600	1.49
BW45-004	750441.01	2082050.09	2.5	4.5	Uranium-238	5.522	PCI/G	1.763	351	1600	1.49
BW45-004	750441.01	2082050.09	0	0.5	VANADIUM	141	MG/KG	31	7150	433	45.590
BW45-004	750441.01	2082050.09	0.5	2.5	VANADIUM	141	MG/KG	31.000	7150	433	88.49
BW45-004	750441.01	2082050.09	2.5	4.5	VANADIUM	157	MG/KG	31.000	7150	433	88.49
BW45-004	750441.01	2082050.09	0	0.5	ZINC	96.2	MG/KG	9	307000	--	73.760
BW46-000	750626	2082087.06	0	0.5	ARSENIC	11.1	MG/KG	5	22.2	21.6	10.090
BW46-000	750626	2082087.06	0	0.5	BARIUM	770	MG/KG	98	26400	--	141.260
BW46-000	750626	2082087.06	0	0.5	CHROMIUM	41.2	MG/KG	20	268	--	16.990
BW46-000	750626	2082087.06	0	0.5	CHRYSENE	49	UG/KG	42	3490000	--	NA
BW46-000	750626	2082087.06	0	0.5	COPPER	39.1	MG/KG	4	40900	--	18.060
BW46-000	750626	2082087.06	0	0.5	FLUORANTHENE	110	UG/KG	48	27000000	--	NA
BW46-000	750626	2082087.06	0	0.5	IRON	32000	MG/KG	2190	307000	--	18037.000
BW46-000	750626	2082087.06	0	0.5	MANGANESE	411	MG/KG	158	3480	--	365.080
BW46-000	750626	2082087.06	0	0.5	METHYLENE CHLORIDE	2.9	UG/KG	0.98	2530000	39500	NA
BW46-000	750626	2082087.06	0	0.5	NICKEL	45.7	MG/KG	12	20400	--	14.910
BW46-000	750626	2082087.06	0	0.5	PYRENE	82	UG/KG	69	22000000	--	NA
BW46-000	750626	2082087.06	0	0.5	STRONTIUM	196	MG/KG	20	613000	--	48.940
BW46-000	750626	2082087.06	0	0.5	Uranium-235	0.2878	PCI/G	0.119	8	1900	0.094
BW46-000	750626	2082087.06	0	0.5	Uranium-238	4.135	PCI/G	1.63	351	1600	2.000
BW46-000	750626	2082087.06	0	0.5	VANADIUM	148	MG/KG	31	7150	433	45.590
BW46-000	750626	2082087.06	0	0.5	ZINC	83.5	MG/KG	9	307000	--	73.760
BW46-001	750568.82	2082070	0	0.5	BARIUM	853	MG/KG	98.000	26400	--	289.38

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW-AL	ECO AL	Background
BW46-001	750568.82	2082070	0.0	0.5	CHRYSENE	48	UG/KG	42.000	3490000	--	NA
BW46-001	750568.82	2082070	0.0	0.5	COPPER	55.2	MG/KG	4.000	40900	--	38.21
BW46-001	750568.82	2082070	0.0	0.5	Uranium-238	3.452	PCI/G	1.947	351	1600	1.49
BW46-001	750568.82	2082070	0.0	0.5	VANADIUM	159	MG/KG	31.000	7150	433	88.49
BX45-000*	750443.4	2082137.61	0.0	0.5	BARIUM	682	MG/KG	98.000	26400	--	289.38
BX45-000*	750443.4	2082137.61	0.0	0.5	COPPER	116	MG/KG	4.000	40900	--	38.21
BX45-000*	750443.4	2082137.61	0.0	0.5	IRON	44100	MG/KG	2190.000	307000	--	41046.52
BX45-000*	750443.4	2082137.61	0.0	0.5	Uranium-238	4.85	PCI/G	2.425	351	1600	1.49
BX45-000*	750443.4	2082137.61	0.0	0.5	Uranium-235	0.2823	PCI/G	0.148	8	1900	0.12
BX45-000*	750443.4	2082137.61	0.0	0.5	VANADIUM	185	MG/KG	31.000	7150	433	88.49
BX45-001	750413.77	2082170.33	0.0	0.5	BARIUM	642	MG/KG	98.000	26400	--	289.38
BX45-001	750413.77	2082170.33	0.0	0.5	COPPER	39	MG/KG	4.000	40900	--	38.21
BX45-001	750413.77	2082170.33	0.0	0.5	Uranium-235	0.1246	PCI/G	0.095	8	1900	0.12
BX45-001	750413.77	2082170.33	0.0	0.5	Uranium-238	4.674	PCI/G	1.700	351	1600	1.49
BX45-001	750413.77	2082170.33	0.0	0.5	VANADIUM	130	MG/KG	31.000	7150	433	88.49
BX45-002	750504.15	2082175.83	0.0	0.5	ACENAPHTHENE	71	UG/KG	54.000	4.1000000	--	NA
BX45-002	750504.15	2082175.83	0.0	0.5	ANTHRACENE	110	UG/KG	78.000	200000000	--	NA
BX45-002	750504.15	2082175.83	0.0	0.5	BARIUM	544	MG/KG	98.000	26400	--	289.38
BX45-002	750504.15	2082175.83	0.0	0.5	BENZO(A)ANTHRACENE	160	UG/KG	47.000	34900	800000	NA
BX45-002	750504.15	2082175.83	0.0	0.5	BENZO(A)PYRENE	160	UG/KG	61.000	3490	25700	NA
BX45-002	750504.15	2082175.83	0.0	0.5	BENZO(B)FLUORANTHENE	130	UG/KG	75.000	34900	1010000	NA
BX45-002	750504.15	2082175.83	0.0	0.5	BENZO(K)FLUORANTHENE	130	UG/KG	81.000	349000	1010000	NA
BX45-002	750504.15	2082175.83	0.0	0.5	CHRYSENE	180	UG/KG	41.000	3490000	--	NA
BX45-002	750504.15	2082175.83	0.0	0.5	COPPER	90.4	MG/KG	4.000	40900	--	38.21
BX45-002	750504.15	2082175.83	0.0	0.5	FLUORANTHENE	540	UG/KG	47.000	27000000	--	NA
BX45-002	750504.15	2082175.83	0.0	0.5	INDENO(1,2,3-CD)PYRENE	69	UG/KG	53.000	34900	--	NA
BX45-002	750504.15	2082175.83	0.0	0.5	PYRENE	370	UG/KG	67.000	22000000	--	NA
BX45-002	750504.15	2082175.83	0.0	0.5	Uranium-235	0.2885	PCI/G	0.156	8	1900	0.12

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRWAL	ECO AL	Background
BX45-002	750504.15	2082175.83	0.0	0.5	Uranium-238	4.456	PCI/G	2.357	351	1600	1.49
BX45-002	750504.15	2082175.83	0.0	0.5	VANADIUM	187	MG/KG	31.000	7150	433	88.49
BX45-003	750466.46	2082286.47	0.0	0.5	BARIUM	822	MG/KG	98.000	26400	--	289.38
BX45-003	750466.46	2082286.47	0.0	0.5	BIS(2-ETHYLHEXYL)PHTHALATE	100	UG/KG	83.000	1970000	--	NA
BX45-003	750466.46	2082286.47	0.0	0.5	VANADIUM	138	MG/KG	31.000	7150	433	88.49
BX45-004	750441.44	2082210.13	0.0	0.5	BARIUM	899	MG/KG	98.000	26400	--	289.38
BX45-004	750441.44	2082210.13	0.0	0.5	CHROMIUM	85.4	MG/KG	20.000	268	--	68.27
BX45-004	750441.44	2082210.13	0.0	0.5	COPPER	102	MG/KG	4.000	40900	--	38.21
BX45-004	750441.44	2082210.13	0.0	0.5	MANGANESE	1050	MG/KG	158.000	3480	--	901.62
BX45-004	750441.44	2082210.13	0.0	0.5	NAPHTHALENE	2.2	UG/KG	1.100	3090000	--	NA
BX45-004	750441.44	2082210.13	0.0	0.5	Uranium-235	0.1938	PCI/G	0.136	8	1900	0.12
BX45-004	750441.44	2082210.13	0.0	0.5	Uranium-238	1.56	PCI/G	0.213	351	1600	1.49
BX45-004	750441.44	2082210.13	0.0	0.5	Uranium-238	3.772	PCI/G	2.096	351	1600	1.49
BX45-004	750441.44	2082210.13	0.0	0.5	VANADIUM	183	MG/KG	31.000	7150	433	88.49
BX45-005	750383.62	2082244.42	0.0	0.5	BARIUM	645	MG/KG	98.000	26400	--	289.38
BX45-005	750383.62	2082244.42	0.0	0.5	BENZO(A)ANTHRACENE	48	UG/KG	47.000	34900	800000	NA
BX45-005	750383.62	2082244.42	0.0	0.5	CHRYSENE	52	UG/KG	41.000	3490000	--	NA
BX45-005	750383.62	2082244.42	0.0	0.5	COPPER	91.3	MG/KG	4.000	40900	--	38.21
BX45-005	750383.62	2082244.42	0.0	0.5	FLUORANTHENE	100	UG/KG	47.000	27000000	--	NA
BX45-005	750383.62	2082244.42	0.0	0.5	PYRENE	99	UG/KG	68.000	22000000	--	NA
BX45-005	750383.62	2082244.42	0.0	0.5	Uranium-238	4.413	PCI/G	1.942	351	1600	1.49
BX45-005	750383.62	2082244.42	0.0	0.5	Uranium-235	0.2534	PCI/G	0.161	8	1900	0.12
BX45-005	750383.62	2082244.42	0.0	0.5	VANADIUM	189	MG/KG	31.000	7150	433	88.49
BX45-006	750428.74	2082276.67	0.0	0.5	BARIUM	531	MG/KG	98.000	26400	--	289.38
BX45-006	750428.74	2082276.67	0.0	0.5	BENZO(A)ANTHRACENE	100	UG/KG	47.000	34900	800000	NA
BX45-006	750428.74	2082276.67	0.0	0.5	BENZO(B)FLUORANTHENE	90	-UG/KG	76.000	34900	1010000	NA
BX45-006	750428.74	2082276.67	0.0	0.5	BENZO(K)FLUORANTHENE	99	UG/KG	82.000	349000	1010000	NA

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW AT	EGO AL	Background
BX45-006	750428.74	2082276.67	0.0	0.5	CHRYSENE	130	UG/KG	41.000	3490000	--	NA
BX45-006	750428.74	2082276.67	0.0	0.5	COPPER	103	MG/KG	4.000	40900	--	38.21
BX45-006	750428.74	2082276.67	0.0	0.5	FLUORANTHENE	230	UG/KG	47.000	27000000	--	NA
BX45-006	750428.74	2082276.67	0.0	0.5	PYRENE	190	UG/KG	68.000	22000000	--	NA
BX45-006	750428.74	2082276.67	0.0	0.5	Uranium-235	0.216	PCI/G	0.160	8	1900	0.12
BX45-006	750428.74	2082276.67	0.0	0.5	Uranium-238	4.111	PCI/G	1.914	351	1600	1.49
BX45-006	750428.74	2082276.67	0.0	0.5	VANADIUM	160	MG/KG	31.000	7150	433	88.49
BX45-007	750498.27	2082319.87	0.0	0.5	ARSENIC	13.5	MG/KG	5.000	22.2	21.6	13.14
BX45-007	750498.27	2082319.87	0.0	0.5	BARIUM	520	MG/KG	98.000	26400	--	289.38
BX45-007	750498.27	2082319.87	0.0	0.5	BENZO(A)ANTHRACENE	390	UG/KG	50.000	34900	800000	NA
BX45-007	750498.27	2082319.87	0.0	0.5	BENZO(A)PYRENE	630	UG/KG	65.000	3490	25700	NA
BX45-007	750498.27	2082319.87	0.0	0.5	CHRYSENE	740	UG/KG	43.000	3490000	--	NA
BX45-007	750498.27	2082319.87	0.0	0.5	COPPER	146	MG/KG	4.000	40900	--	38.21
BX45-007	750498.27	2082319.87	0.0	0.5	LEAD	26.2	MG/KG	7.000	1000	25.6	24.97
BX45-007	750498.27	2082319.87	0.0	0.5	PYRENE	180	UG/KG	71.000	22000000	--	NA
BX45-007	750498.27	2082319.87	0.0	0.5	Uranium-235	0.2746	PCI/G	0.164	8	1900	0.12
BX45-007	750498.27	2082319.87	0.0	0.5	Uranium-238	4.814	PCI/G	2.487	351	1600	1.49
BX45-007	750498.27	2082319.87	0.0	0.5	VANADIUM	171	MG/KG	31.000	7150	433	88.49
BX45-007	750498.27	2082319.87	0.0	0.5	ZINC	239	MG/KG	9.000	307000	--	139.1
BX45-008	750373.83	2082314.97	0.0	0.5	BARIUM	1110	MG/KG	98.000	26400	--	289.38
BX45-008	750373.83	2082314.97	0.0	0.5	METHYLENE CHLORIDE	2.1	UG/KG	0.980	2530000	39500	NA
BX45-008	750373.83	2082314.97	0.0	0.5	NAPHTHALENE	6.4	UG/KG	0.970	3090000	--	NA
BX45-008	750373.83	2082314.97	0.0	0.5	Uranium-238	3.653	PCI/G	1.772	351	1600	1.49
BX45-008	750373.83	2082314.97	0.0	0.5	Uranium-235	0.1638	PCI/G	0.163	8	1900	0.12
BX45-008	750373.83	2082314.97	0.0	0.5	VANADIUM	162	MG/KG	31.000	7150	433	88.49
BX46-000	750567.84	2082142.51	0.0	0.5	BARIUM	580	MG/KG	98.000	26400	--	289.38
BX46-000	750567.84	2082142.51	0.0	0.5	BENZO(A)ANTHRACENE	54	UG/KG	49.000	34900	800000	NA
BX46-000	750567.84	2082142.51	0	0.5	CHRYSENE	60	UG/KG	43.000	3490000	--	NA

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW AL	ECO AL	Background
BX46-000	750567.84	2082142.51	0	0.5	COPPER	79.6	MG/KG	4.000	40900	--	38.21
BX46-000	750567.84	2082142.51	0	0.5	FLUORANTHENE	190	UG/KG	49.000	27000000	--	NA
BX46-000	750567.84	2082142.51	0	0.5	PYRENE	130	UG/KG	70.000	22000000	--	NA
BX46-000	750567.84	2082142.51	0	0.5	Uranium-235	0.2342	PCI/G	0.168	8	1900	0.12
BX46-000	750567.84	2082142.51	0	0.5	Uranium-238	4.573	PCI/G	2.023	351	1600	1.49
BX46-000	750567.84	2082142.51	0	0.5	VANADIUM	172	MG/KG	31.000	7150	433	88.49
BX46-001	750629.58	2082179.75	0	0.5	BARIUM	562	MG/KG	98.000	26400	--	289.38
BX46-001	750629.58	2082179.75	0	0.5	CHRYSENE	41	UG/KG	40.000	3490000	--	NA
BX46-001	750629.58	2082179.75	0	0.5	COPPER	60.3	MG/KG	4.000	40900	--	38.21
BX46-001	750629.58	2082179.75	0	0.5	FLUORANTHENE	56	UG/KG	46.000	27000000	--	NA
BX46-001	750629.58	2082179.75	0	0.5	Uranium-238	3.208	PCI/G	2.218	351	1600	1.49
BX46-001	750629.58	2082179.75	0	0.5	VANADIUM	171	MG/KG	31.000	7150	433	88.49
BX46-002	750564.9	2082214.05	0	0.5	ARSENIC	15.7	MG/KG	5.000	22.2	21.6	13.14
BX46-002	750564.9	2082214.05	0	0.5	BARIUM	832	MG/KG	98.000	26400	--	289.38
BX46-002	750564.9	2082214.05	0	0.5	BENZO(A)ANTHRACENE	52	UG/KG	43.000	34900	800000	NA
BX46-002	750564.9	2082214.05	0	0.5	BENZO(A)PYRENE	70	UG/KG	56.000	3490	25700	NA
BX46-002	750564.9	2082214.05	0	0.5	CHRYSENE	98	UG/KG	38.000	3490000	--	NA
BX46-002	750564.9	2082214.05	0	0.5	COPPER	151	MG/KG	4.000	40900	--	38.21
BX46-002	750564.9	2082214.05	0	0.5	FLUORANTHENE	99	UG/KG	43.000	27000000	--	NA
BX46-002	750564.9	2082214.05	0	0.5	IRON	61400	MG/KG	2190.000	307000	--	41046.52
BX46-002	750564.9	2082214.05	0	0.5	NAPHTHALENE	12	UG/KG	5.400	3090000	--	NA
BX46-002	750564.9	2082214.05	0	0.5	PYRENE	100	UG/KG	62.000	22000000	--	NA
BX46-002	750564.9	2082214.05	0	0.5	STRONTIUM	359	MG/KG	20.000	613000	--	211.38
BX46-002	750564.9	2082214.05	0	0.5	Uranium-238	3.173	PCI/G	1.592	351	1600	1.49
BX46-003	750579.13	2082286.16	0	0.5	BARIUM	988	MG/KG	98	26400	--	141.260
BX46-003	750579.13	2082286.16	0	0.5	CHROMIUM	38	MG/KG	20	268	--	16.990
BX46-003	750579.13	2082286.16	0	0.5	CHRYSENE	71	UG/KG	37	3490000	--	NA
BX46-003	750579.13	2082286.16	0	0.5	COPPER	24.6	MG/KG	4	40900	--	18.060

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW AL	ECO AL	Background
BX46-003	750579.13	2082286.16	0	0.5	IRON	19300	MG/KG	2190	307000	--	18037.000
BX46-003	750579.13	2082286.16	0	0.5	NICKEL	30.7	MG/KG	12	20400	--	14.910
BX46-003	750579.13	2082286.16	0	0.5	STRONTIUM	171	MG/KG	20	613000	--	48.940
BX46-003	750579.13	2082286.16	0	0.5	U Uranium-238	4.479	PCI/G	1.798236	351	1600	2.000
BX46-003	750579.13	2082286.16	0	0.5	Uranium-235	0.2296	PCI/G	0.151549	8	1900	0.094
BX46-003	750579.13	2082286.16	0	0.5	VANADIUM	115	MG/KG	31	7150	433	45.590
BX46-003	750579.13	2082286.16	0	0.5	ZINC	84.8	MG/KG	9	307000	--	73.760
BX46-004	750627.83	2082223.55	0	0.5	BARIUM	695	MG/KG	98.000	26400	--	289.38
BX46-004	750627.83	2082223.55	0	0.5	BENZO(A)ANTHRACENE	75	UG/KG	45.000	34900	800000	NA
BX46-004	750627.83	2082223.55	0	0.5	CHRYSENE	79	UG/KG	39.000	3490000	--	NA
BX46-004	750627.83	2082223.55	0	0.5	COPPER	125	MG/KG	4.000	40900	--	38.21
BX46-004	750627.83	2082223.55	0	0.5	FLUORANTHENE	130	UG/KG	45.000	27000000	--	NA
BX46-004	750627.83	2082223.55	0	0.5	LEAD	90.6	MG/KG	7.000	1000	25.6	24.97
BX46-004	750627.83	2082223.55	0	0.5	PYRENE	97	UG/KG	65.000	22000000	--	NA
BX46-004	750627.83	2082223.55	0	0.5	Uranium-235	0.175	PCI/G	0.097	8	1900	0.12
BX46-004	750627.83	2082223.55	0	0.5	Uranium-238	3.28	PCI/G	1.440	351	1600	1.49
BX46-004	750627.83	2082223.55	0	0.5	VANADIUM	132	MG/KG	31.000	7150	433	88.49
BX46-005	750623.3	2082288.04	0	0.5	BARIUM	743	MG/KG	98	26400	--	141.260
BX46-005	750623.3	2082288.04	0	0.5	CHROMIUM	40	MG/KG	20	268	--	16.990
BX46-005	750623.3	2082288.04	0	0.5	COPPER	37.7	MG/KG	4	40900	--	18.060
BX46-005	750623.3	2082288.04	0	0.5	IRON	23800	MG/KG	2190	307000	--	18037.000
BX46-005	750623.3	2082288.04	0	0.5	NICKEL	34	MG/KG	12	20400	--	14.910
BX46-005	750623.3	2082288.04	0	0.5	STRONTIUM	136	MG/KG	20	613000	--	48.940
BX46-005	750623.3	2082288.04	0	0.5	Uranium-235	0.2228	PCI/G	0.148139	8	1900	0.094
BX46-005	750623.3	2082288.04	0	0.5	Uranium-238	3.954	PCI/G	1.836435	351	1600	2.000
BX46-005	750623.3	2082288.04	0	0.5	VANADIUM	137	MG/KG	31	7150	433	45.590
BX46-005	750623.3	2082288.04	0	0.5	ZINC	82.4	MG/KG	9	307000	--	73.760
BY45-000**	750429.37	2082353.57	0	0.5	BARIUM	699	MG/KG	98.000	26400	--	289.38

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW AL	ECO AL	Background
BY45-000**	750429.37	2082353.57	0	0.5	BENZO(A)ANTHRACENE	450	UG/KG	45.000	34900	80000	NA
BY45-000**	750429.37	2082353.57	0	0.5	BENZO(A)PYRENE	740	UG/KG	59.000	3490	25700	NA
BY45-000**	750429.37	2082353.57	0	0.5	CHRYSENE	970	UG/KG	39.000	3490000	--	NA
BY45-000**	750429.37	2082353.57	0	0.5	COPPER	160	MG/KG	4.000	40900	--	38.21
BY45-000**	750429.37	2082353.57	0	0.5	PYRENE	130	UG/KG	64.000	22000000	--	NA
BY45-000**	750429.37	2082353.57	0	0.5	STRONTIUM	312	MG/KG	20.000	613000	--	211.38
BY45-000**	750429.37	2082353.57	0	0.5	Uranium-235	0.2566	PCI/G	0.141	8	1900	0.12
BY45-000**	750429.37	2082353.57	0	0.5	Uranium-238	4.564	PCI/G	1.852	351	1600	1.49
BY45-000**	750429.37	2082353.57	0	0.5	VANADIUM	109	MG/KG	31.000	7150	433	88.49
BY45-001	750371.87	2082387.49	0	0.5	ARSENIC	11.3	MG/KG	5	22.2	21.6	10.090
BY45-001	750371.87	2082387.49	0	0.5	BARIUM	800	MG/KG	98	26400	--	141.260
BY45-001	750371.87	2082387.49	0	0.5	CHROMIUM	41.4	MG/KG	20	268	--	16.990
BY45-001	750371.87	2082387.49	0	0.5	COPPER	47.1	MG/KG	4	40900	--	18.060
BY45-001	750371.87	2082387.49	0	0.5	IRON	31600	MG/KG	2190	307000	--	18037.000
BY45-001	750371.87	2082387.49	0	0.5	MANGANESE	416	MG/KG	158	3480	--	365.080
BY45-001	750371.87	2082387.49	0	0.5	METHYLENE CHLORIDE	1.4	UG/KG	0.93	2530000	39500	NA
BY45-001	750371.87	2082387.49	0	0.5	NAPHTHALENE	2.8	UG/KG	1	3090000	--	NA
BY45-001	750371.87	2082387.49	0	0.5	NICKEL	42.6	MG/KG	12	20400	--	14.910
BY45-001	750371.87	2082387.49	0	0.5	STRONTIUM	129	MG/KG	20	613000	--	48.940
BY45-001	750371.87	2082387.49	0	0.5	Uranium-235	0.23	PCI/G	0.13395	8	1900	0.094
BY45-001	750371.87	2082387.49	0	0.5	Uranium-238	4.066	PCI/G	1.789948	351	1600	2.000
BY45-001	750371.87	2082387.49	0	0.5	VANADIUM	158	MG/KG	31	7150	433	45.590
BY45-001	750371.87	2082387.49	0	0.5	ZINC	96.2	MG/KG	9	307000	--	73.760
BY45-002	750432.62	2082427.66	0	0.5	Americium-241	0.0842	PCI/G	0.0631	76	1900	0.023
BY45-002	750432.62	2082427.66	0	0.5	BARIUM	820	MG/KG	98	26400	--	141.260
BY45-002	750432.62	2082427.66	0	0.5	CHROMIUM	31.1	MG/KG	20	268	--	16.990
BY45-002	750432.62	2082427.66	0	0.5	COPPER	112	MG/KG	4	40900	--	18.060
BY45-002	750432.62	2082427.66	0	0.5	IRON	28700	MG/KG	2190	307000	--	18037.000

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW AL	ECO AL	Background
BY45-002	750432.62	2082427.66	0	0.5	NICKEL	29.7	MG/KG	12	20400	--	14,910
BY45-002	750432.62	2082427.66	0	0.5	Plutonium 239/240	0.183	PCI/G	0.137	50	3800	0.066
BY45-002	750432.62	2082427.66	0	0.5	STRONTIUM	338	MG/KG	20	613000	--	48,940
BY45-002	750432.62	2082427.66	0	0.5	Uranium-235	0.1804	PCI/G	0.131174	8	1900	0.094
BY45-002	750432.62	2082427.66	0	0.5	Uranium-238	2.798	PCI/G	1.455216	351	1600	2.000
BY45-002	750432.62	2082427.66	0	0.5	VANADIUM	65	MG/KG	31	7150	433	45,590
BY45-003	750495.33	2082390.43	0	0.5	BARIUM	472	MG/KG	98,000	26400	--	289,38
BY45-003	750495.33	2082390.43	0	0.5	COPPER	41.3	MG/KG	4,000	40900	--	38.21
BY45-003	750495.33	2082390.43	0	0.5	Uranium-235	0.2867	PCI/G	0.137	8	1900	0.12
BY45-003	750495.33	2082390.43	0	0.5	Uranium-238	4.585	PCI/G	2.393	351	1600	1.49
BY45-003	750495.33	2082390.43	0	0.5	VANADIUM	176	MG/KG	31,000	7150	433	88.49
BY45-004	750556.09	2082431.58	0	0.5	ARSENIC	11.9	MG/KG	5	22.2	21.6	10.090
BY45-004	750556.09	2082431.58	0	0.5	BARIUM	794	MG/KG	98	26400	--	141,260
BY45-004	750556.09	2082431.58	0	0.5	CHROMIUM	33.4	MG/KG	20	268	--	16,990
BY45-004	750556.09	2082431.58	0	0.5	COPPER	46	MG/KG	4	40900	--	18,060
BY45-004	750556.09	2082431.58	0	0.5	IRON	32300	MG/KG	2190	307000	--	18037,000
BY45-004	750556.09	2082431.58	0	0.5	MANGANESE	493	MG/KG	158	3480	--	365,080
BY45-004	750556.09	2082431.58	0	0.5	NICKEL	35	MG/KG	12	20400	--	14,910
BY45-004	750556.09	2082431.58	0	0.5	STRONTIUM	335	MG/KG	20	613000	--	48,940
BY45-004	750556.09	2082431.58	0	0.5	Uranium-235	0.1225	PCI/G	0.115241	8	1900	0.094
BY45-004	750556.09	2082431.58	0	0.5	VANADIUM	74.4	MG/KG	31	7150	433	45,590
BY45-005	750493.37	2082462.94	0	0.5	ARSENIC	12	MG/KG	5	22.2	21.6	10.090
BY45-005	750493.37	2082462.94	0	0.5	BARIUM	819	MG/KG	98	26400	--	141,260
BY45-005	750493.37	2082462.94	0	0.5	CHROMIUM	35.8	MG/KG	20	268	--	16,990
BY45-005	750493.37	2082462.94	0	0.5	COPPER	120	MG/KG	4	40900	--	18,060
BY45-005	750493.37	2082462.94	0	0.5	FLUORANTHENE	75	UG/KG	41	27000000	--	NA
BY45-005	750493.37	2082462.94	0	0.5	IRON	33900	MG/KG	2190	307000	--	18037,000
BY45-005	750493.37	2082462.94	0	0.5	MANGANESE	867	MG/KG	158	3480	--	365,080

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRWAL	ECO AL	Background
BY45-005	750493.37	2082462.94	0	0.5	NAPHTHALENE	22	UG/KG	5.3	3090000	--	NA
BY45-005	750493.37	2082462.94	0	0.5	NICKEL	35.9	MG/KG	12	20400	--	14.910
BY45-005	750493.37	2082462.94	0	0.5	PYRENE	63	UG/KG	59	22000000	--	NA
BY45-005	750493.37	2082462.94	0	0.5	STRONTIUM	294	MG/KG	20	613000	--	48.940
BY45-005	750493.37	2082462.94	0	0.5	Uranium-238	3.346	PCI/G	1.963475	351	1600	2.000
BY45-005	750493.37	2082462.94	0	0.5	VANADIUM	69.4	MG/KG	31	7150	433	45.590
BY45-005	750493.37	2082462.94	0	0.5	ZINC	95.2	MG/KG	9	307000	--	73.760
BY45-006	750429.88	2082524.34	0	0.5	ALUMINIUM	27000	MG/KG	2.6	228000	--	16902.000
BY45-006	750429.88	2082524.34	0	0.5	Americium-241	0.0579	PCI/G	0.0248	76	1900	0.023
BY45-006	750429.88	2082524.34	0	0.5	BARIUM	711	MG/KG	98	26400	--	141.260
BY45-006	750429.88	2082524.34	0	0.5	BERYLLIUM	1.1	MG/KG	0.042	921	2.15	0.966
BY45-006	750429.88	2082524.34	0	0.5	CHROMIUM	74.6	MG/KG	20	268	--	16.990
BY45-006	750429.88	2082524.34	0	0.5	COPPER	131	MG/KG	4	40900	--	18.060
BY45-006	750429.88	2082524.34	0	0.5	IRON	58900	MG/KG	2190	307000	--	18037.000
BY45-006	750429.88	2082524.34	0	0.5	LITHIUM	12	MG/KG	0.14	20400	--	11.550
BY45-006	750429.88	2082524.34	0	0.5	MANGANESE	1190	MG/KG	158	3480	--	365.080
BY45-006	750429.88	2082524.34	0	0.5	NICKEL	61.1	MG/KG	12	20400	--	14.910
BY45-006	750429.88	2082524.34	0	0.5	STRONTIUM	284	MG/KG	20	613000	--	48.940
BY45-006	750429.88	2082524.34	0	0.5	Uranium-235	0.2261	PCI/G	0.118983	8	1900	0.094
BY45-006	750429.88	2082524.34	0	0.5	Uranium-238	3.299	PCI/G	1.752299	351	1600	2.000
BY45-006	750429.88	2082524.34	0	0.5	VANADIUM	191	MG/KG	31	7150	433	45.590
BY45-006	750429.88	2082524.34	0	0.5	ZINC	171	MG/KG	9	307000	--	73.760
BY45-007	750552.17	2082504.09	0	0.5	ARSENIC	12.6	MG/KG	5	22.2	21.6	10.090
BY45-007	750552.17	2082504.09	0	0.5	BARIUM	757	MG/KG	98	26400	--	141.260
BY45-007	750552.17	2082504.09	0	0.5	BENZO(A)ANTHRACENE	370	UG/KG	40	34900	800000	NA
BY45-007	750552.17	2082504.09	0	0.5	BENZO(A)PYRENE	640	UG/KG	53	3490	25700	NA
BY45-007	750552.17	2082504.09	0	0.5	CHROMIUM	31.9	MG/KG	20	268	--	16.990
BY45-007	750552.17	2082504.09	0	0.5	CHRYSENE	810	UG/KG	35	3490000	--	NA

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW AL	ECO AL	Background
BY45-007	750552.17	2082504.09	0	0.5	COPPER	255	MG/KG	4	40900	--	18.060
BY45-007	750552.17	2082504.09	0	0.5	DIBENZ(A,H)ANTHRACENE	190	UG/KG	64	3490	--	NA
BY45-007	750552.17	2082504.09	0	0.5	INDENO(1,2,3-CD)PYRENE	140	UG/KG	46	34900	--	NA
BY45-007	750552.17	2082504.09	0	0.5	IRON	33400	MG/KG	2190	307000	--	18037.000
BY45-007	750552.17	2082504.09	0	0.5	MANGANESE	900	MG/KG	158	3480	--	365.080
BY45-007	750552.17	2082504.09	0	0.5	NICKEL	36.6	MG/KG	12	20400	--	14.910
BY45-007	750552.17	2082504.09	0	0.5	PYRENE	130	UG/KG	58	22000000	--	NA
BY45-007	750552.17	2082504.09	0	0.5	STRONTIUM	570	MG/KG	20	613000	--	48.940
BY45-007	750552.17	2082504.09	0	0.5	Uranium-238	3.466	PCI/G	1.350785	351	1600	2.000
BY45-007	750552.17	2082504.09	0	0.5	VANADIUM	76	MG/KG	31	7150	433	45.590
BY45-007	750552.17	2082504.09	0	0.5	ZINC	117	MG/KG	9	307000	--	73.760
BY45-008	750490.83	2082568.19	0	0.5	BARIUM	737	MG/KG	98.000	26400	--	289.38
BY45-008	750490.83	2082568.19	0	0.5	BENZO(A)ANTHRACENE	130	UG/KG	40.000	34900	800000	NA
BY45-008	750490.83	2082568.19	0	0.5	BENZO(A)PYRENE	210	UG/KG	52.000	3490	25700	NA
BY45-008	750490.83	2082568.19	0	0.5	BENZO(B)FLUORANTHENE	89	UG/KG	64.000	34900	1010000	NA
BY45-008	750490.83	2082568.19	0	0.5	CHRYSENE	280	UG/KG	35.000	3490000	--	NA
BY45-008	750490.83	2082568.19	0	0.5	COPPER	144	MG/KG	4.000	40900	--	38.21
BY45-008	750490.83	2082568.19	0	0.5	INDENO(1,2,3-CD)PYRENE	47	UG/KG	45.000	34900	--	NA
BY45-008	750490.83	2082568.19	0	0.5	PYRENE	91	UG/KG	57.000	22000000	--	NA
BY45-008	750490.83	2082568.19	0	0.5	STRONTIUM	348	MG/KG	20.000	613000	--	211.38
BY45-008	750490.83	2082568.19	0	0.5	Uranium-235	0.1741	PCI/G	0.126	8	1900	0.12
BY45-008	750490.83	2082568.19	0	0.5	Uranium-238	3.491	PCI/G	1.569	351	1600	1.49
BY46-000**	750561.96	2082356.13	0	0.5	BARIUM	869	MG/KG	98	26400	--	141.260
BY46-000**	750561.96	2082356.13	0	0.5	BENZO(A)ANTHRACENE	79	UG/KG	40	34900	800000	NA
BY46-000**	750561.96	2082356.13	0	0.5	BENZO(A)PYRENE	91	UG/KG	52	3490	25700	NA
BY46-000**	750561.96	2082356.13	0	0.5	CHROMIUM	39.6	MG/KG	20	268	--	16.990
BY46-000**	750561.96	2082356.13	0	0.5	CHRYSENE	93	UG/KG	35	3490000	--	NA
BY46-000**	750561.96	2082356.13	0	0.5	COPPER	32.1	MG/KG	4	40900	--	18.060

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW AL	ECO AL	Background
BY46-000**	750561.96	2082356.13	0	0.5	FLUORANTHENE	52	UG/KG	40	27000000	--	NA
BY46-000**	750561.96	2082356.13	0	0.5	IRON	33600	MG/KG	2190	307000	--	18037.000
BY46-000**	750561.96	2082356.13	0	0.5	METHYLENE CHLORIDE	1.4	UG/KG	0.85	2530000	39500	NA
BY46-000**	750561.96	2082356.13	0	0.5	NICKEL	37.9	MG/KG	12	20400	--	14.910
BY46-000**	750561.96	2082356.13	0	0.5	PYRENE	70	UG/KG	57	22000000	--	NA
BY46-000**	750561.96	2082356.13	0	0.5	STRONTIUM	429	MG/KG	20	613000	--	48.940
BY46-000**	750561.96	2082356.13	0	0.5	Uranium-235	0.2253	PCI/G	0.147407	8	1900	0.094
BY46-000**	750561.96	2082356.13	0	0.5	Uranium-238	3.854	PCI/G	1.779416	351	1600	2.000
BY46-000**	750561.96	2082356.13	0	0.5	VANADIUM	126	MG/KG	31	7150	433	45.590
BY46-001	750591.99	2082379.94	0	0.5	BARIUM	683	MG/KG	98	26400	--	141.260
BY46-001	750591.99	2082379.94	0	0.5	BENZO(A)ANTHRACENE	51	UG/KG	46	34900	800000	NA
BY46-001	750591.99	2082379.94	0	0.5	BENZO(A)PYRENE	66	UG/KG	60	3490	25700	NA
BY46-001	750591.99	2082379.94	0	0.5	CHROMIUM	35.3	MG/KG	20	268	--	16.990
BY46-001	750591.99	2082379.94	0	0.5	CHRYSENE	61	UG/KG	40	3490000	--	NA
BY46-001	750591.99	2082379.94	0	0.5	COPPER	35.9	MG/KG	4	40900	--	18.060
BY46-001	750591.99	2082379.94	0	0.5	IRON	21200	MG/KG	2190	307000	--	18037.000
BY46-001	750591.99	2082379.94	0	0.5	NAPHTHALENE	6.34	UG/KG	5.42	3090000	--	NA
BY46-001	750591.99	2082379.94	0	0.5	NICKEL	27.7	MG/KG	12	20400	--	14.910
BY46-001	750591.99	2082379.94	0	0.5	STRONTIUM	131	MG/KG	20	613000	--	48.940
BY46-001	750591.99	2082379.94	0	0.5	Uranium-238	3.566	PCI/G	1.910386	351	1600	2.000
BY46-001	750591.99	2082379.94	0	0.5	VANADIUM	113	MG/KG	31	7150	433	45.590
BY46-001	750591.99	2082379.94	0	0.5	ZINC	80.4	MG/KG	9	307000	--	73.760
BY46-002	750627.02	2082468.82	0	0.5	ALUMINUM	21000	MG/KG	2.4	228000	--	16902.000
BY46-002	750627.02	2082468.82	0	0.5	Americium-241	0.206	PCI/G	0.0783	76	1900	0.023
BY46-002	750627.02	2082468.82	0	0.5	ARSENIC	13.3	MG/KG	5	22.2	21.6	10.090
BY46-002	750627.02	2082468.82	0	0.5	BARIUM	604	MG/KG	98	26400	--	141.260
BY46-002	750627.02	2082468.82	0	0.5	BENZO(A)ANTHRACENE	62	UG/KG	45	34900	800000	NA
BY46-002	750627.02	2082468.82	0	0.5	BENZO(A)PYRENE	86	UG/KG	59	3490	25700	NA

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW AL	ECO AL	Background
BY46-002	750627.02	2082468.82	0	0.5	CHROMIUM	66.6	MG/KG	20	268	--	16,990
BY46-002	750627.02	2082468.82	0	0.5	CHRYSENE	75	UG/KG	39	3490000	--	NA
BY46-002	750627.02	2082468.82	0	0.5	COPPER	74.9	MG/KG	4	40900	--	18,060
BY46-002	750627.02	2082468.82	0	0.5	FLUORANTHENE	170	UG/KG	45	27000000	--	NA
BY46-002	750627.02	2082468.82	0	0.5	IRON	39100	MG/KG	2190	307000	--	18037,000
BY46-002	750627.02	2082468.82	0	0.5	LITHIUM	12	MG/KG	0.13	20400	--	11,550
BY46-002	750627.02	2082468.82	0	0.5	MANGANESE	498	MG/KG	158	3480	--	365,080
BY46-002	750627.02	2082468.82	0	0.5	NICKEL	51.6	MG/KG	12	20400	--	14,910
BY46-002	750627.02	2082468.82	0	0.5	PYRENE	160	UG/KG	65	22000000	--	NA
BY46-002	750627.02	2082468.82	0	0.5	STRONTIUM	205	MG/KG	20	613000	--	48,940
BY46-002	750627.02	2082468.82	0	0.5	Uranium-235	0.372	PCI/G	0.269	8	1900	0.094
BY46-002	750627.02	2082468.82	0	0.5	Uranium-238	4.399	PCI/G	1.994135	351	1600	2,000
BY46-002	750627.02	2082468.82	0	0.5	VANADIUM	131	MG/KG	31	7150	433	45,590
BY46-002	750627.02	2082468.82	0	0.5	ZINC	141	MG/KG	9	307000	--	73,760
BZ45-000	750548.25	2082573.66	0	0.5	ARSENIC	10.4	MG/KG	5	22.2	21.6	10,090
BZ45-000	750548.25	2082573.66	0	0.5	BARIUM	742	MG/KG	98	26400	--	141,260
BZ45-000	750548.25	2082573.66	0	0.5	BENZO(A)ANTHRACENE	240	UG/KG	41	34900	800000	NA
BZ45-000	750548.25	2082573.66	0	0.5	BENZO(A)PYRENE	450	UG/KG	53	3490	25700	NA
BZ45-000	750548.25	2082573.66	0	0.5	BENZO(B)FLUORANTHENE	180	UG/KG	66	34900	1010000	NA
BZ45-000	750548.25	2082573.66	0	0.5	CHROMIUM	26.2	MG/KG	20	268	--	16,990
BZ45-000	750548.25	2082573.66	0	0.5	CHRYSENE	470	UG/KG	36	3490000	--	NA
BZ45-000	750548.25	2082573.66	0	0.5	COPPER	73.3	MG/KG	4	40900	--	18,060
BZ45-000	750548.25	2082573.66	0	0.5	DIBENZ(A,H)ANTHRACENE	130	UG/KG	65	3490	--	NA
BZ45-000	750548.25	2082573.66	0	0.5	INDENO(1,2,3-CD)PYRENE	99	UG/KG	46	34900	--	NA
BZ45-000	750548.25	2082573.66	0	0.5	IRON	34100	MG/KG	2190	307000	--	18037,000
BZ45-000	750548.25	2082573.66	0	0.5	MANGANESE	679	MG/KG	158	3480	--	365,080
BZ45-000	750548.25	2082573.66	0	0.5	NICKEL	37.6	MG/KG	12	20400	--	14,910
BZ45-000	750548.25	2082573.66	0	0.5	PYRENE	82	UG/KG	59	22000000	--	NA

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW/AL	ECO AL	Background
BZ45-000	750548.25	2082573.66	0	0.5	STRONTIUM	351	MG/KG	20	613000	--	48.940
BZ45-000	750548.25	2082573.66	0	0.5	Uranium-235	0.1979	PCI/G	0.167196	8	1900	0.094
BZ45-000	750548.25	2082573.66	0	0.5	Uranium-238	3.503	PCI/G	1.68254	351	1600	2.000
BZ45-000	750548.25	2082573.66	0	0.5	VANADIUM	88.9	MG/KG	31	7150	433	45.590
BZ45-000	750548.25	2082573.66	0	0.5	ZINC	111	MG/KG	9	307000	--	73.760
BZ45-001**	750508.83	2082644.67	0	0.5	BARIUM	795	MG/KG	98.000	26400	--	289.38
BZ45-001**	750508.83	2082644.67	0	0.5	BENZO(A)ANTHRACENE	130	UG/KG	41.000	34900	800000	NA
BZ45-001**	750508.83	2082644.67	0	0.5	BENZO(A)PYRENE	140	UG/KG	53.000	3490	25700	NA
BZ45-001**	750508.83	2082644.67	0	0.5	BENZO(B)FLUORANTHENE	79	UG/KG	66.000	34900	1010000	NA
BZ45-001**	750508.83	2082644.67	0	0.5	BENZO(K)FLUORANTHENE	76	UG/KG	71.000	349000	1010000	NA
BZ45-001**	750508.83	2082644.67	0	0.5	CHRYSENE	180	UG/KG	36.000	3490000	--	NA
BZ45-001**	750508.83	2082644.67	0	0.5	COPPER	57.5	MG/KG	4.000	40900	--	38.21
BZ45-001**	750508.83	2082644.67	0	0.5	FLUORANTHENE	190	UG/KG	41.000	27000000	--	NA
BZ45-001**	750508.83	2082644.67	0	0.5	METHYLENE CHLORIDE	3.2	UG/KG	0.820	2530000	39500	NA
BZ45-001**	750508.83	2082644.67	0	0.5	NAPHTHALENE	12	UG/KG	0.880	3090000	--	NA
BZ45-001**	750508.83	2082644.67	0	0.5	PYRENE	180	UG/KG	59.000	22000000	--	NA
BZ45-001**	750508.83	2082644.67	0	0.5	STRONTIUM	481	MG/KG	20.000	613000	--	211.38
BZ45-001**	750508.83	2082644.67	0	0.5	Uranium-235	0.1812	PCI/G	0.106	8	1900	0.12
BZ45-001**	750508.83	2082644.67	0	0.5	Uranium-238	4.054	PCI/G	1.955	351	1600	1.49
BZ45-001**	750508.83	2082644.67	0	0.5	VANADIUM	94.3	MG/KG	31.000	7150	433	88.49
BZ45-002	2082647.2	750549.225	0	0.5	BARIUM	749	MG/KG	98	26400	--	141.260
BZ45-002	2082647.2	750549.225	0	0.5	BENZO(A)ANTHRACENE	67	UG/KG	41	34900	800000	NA
BZ45-002	2082647.2	750549.225	0	0.5	CHRYSENE	130	UG/KG	36	3490000	--	NA
BZ45-002	2082647.2	750549.225	0	0.5	COPPER	354	MG/KG	4	40900	--	18.060
BZ45-002	2082647.2	750549.225	0	0.5	FLUORANTHENE	49	UG/KG	41	27000000	--	NA
BZ45-002	2082647.2	750549.225	0	0.5	IRON	26500	MG/KG	2190	307000	--	18037.000
BZ45-002	2082647.2	750549.225	0	0.5	NICKEL	29.8	MG/KG	12	20400	--	14.910
BZ45-002	2082647.2	750549.225	0	0.5	Plutonium 239240	0.13	PCI/G	0.114	50	3800	0.066

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	DL	WRW-AL	ECO AL	Background
BZ45-002	2082647.2	750549.225	0	0.5	STRONTIUM	347	MG/KG	20	613000	--	48.940
BZ45-002	2082647.2	750549.225	0	0.5	Uranium-235	0.1898	PCI/G	0.137044	8	1900	0.094
BZ45-002	2082647.2	750549.225	0	0.5	Uranium-238	3.816	PCI/G	1.760489	351	1600	2.000
BZ45-002	2082647.2	750549.225	0	0.5	ZINC	207	MG/KG	9	307000	--	73.760
BZ45-003	750548.25	2082707.91	0	0.5	ARSENIC	23.9	MG/KG	5	22.2	21.6	10.090
BZ45-003	750548.25	2082707.91	0	0.5	BARIIUM	435	MG/KG	98	26400	--	141.260
BZ45-003	750548.25	2082707.91	0	0.5	CHROMIUM	25.8	MG/KG	20	268	--	16.990
BZ45-003	750548.25	2082707.91	0	0.5	COPPER	104	MG/KG	4	40900	--	18.060
BZ45-003	750548.25	2082707.91	0	0.5	STRONTIUM	415	MG/KG	20	613000	--	48.940
BZ45-003	750548.25	2082707.91	0	0.5	Uranium-235	0.1869	PCI/G	0.119552	8	1900	0.094
BZ45-003	750548.25	2082707.91	0	0.5	Uranium-238	3.641	PCI/G	1.891099	351	1600	2.000
BZ45-003	750548.25	2082707.91	0	0.5	VANADIUM	84.7	MG/KG	31	7150	433	45.590
BZ45-005	750395.7	2082554.76	6.5	8.5	BARIIUM	822	MG/KG	98.000	26400	--	289.38
BZ45-005	750395.7	2082554.76	6.5	8.5	Uranium-235	0.3121	PCI/G	0.193	8	1900	0.12
BZ45-005	750395.7	2082554.76	6.5	8.5	Uranium-238	5.315	PCI/G	1.670	351	1600	1.49
BZ45-005	750395.7	2082554.76	6.5	8.5	VANADIUM	149	MG/KG	31.000	7150	433	88.49

*Sand mixed with clay.

**No native soil encountered (sampled sand).

NA = not applicable; SBD = soil beginning depth; SED = soil end depth

WRW = Wildlife Refuge Worker; AL = action level

Background = Background Mean Plus 2 Standard Deviations

Table 4
IHSS Groups 300-3 and 300-4 Summary of Analytical Results

Analyte	Media	No. of Samples Analyzed	Detection Frequency (%)	Average Concentration	Maximum Concentration	Detection Limit	Background Mean Plus 2SD	WRW-AL	Ecological AL	Unit
Acenaphthene	Subsurface Soil	1	1	71.00	71.00	54.00	NA	40800000	--	ug/kg
Acetone	Subsurface Soil	15	0	30.20	84.00	120.00	NA	102000000	211000	ug/kg
Acetone	Surface Soil	6	0	12.43	16.00	120.00	NA	102000000	211000	ug/kg
Aluminum	Surface Soil	2	100	24000.00	27000.00	2.60	16902.00	228000	--	mg/kg
Americium-241	Surface Soil	3	100	0.12	0.21	0.08	0.02	76	1900	pci/g
Anthracene	Subsurface Soil	1	1	110.00	110.00	78.00	NA	204000000	--	ug/kg
Arsenic	Subsurface Soil	3	1	14.17	15.70	5.00	10.09	22.2	21.6	mg/kg
Arsenic	Surface Soil	10	100	12.80	23.90	5.00	10.09	22.2	21.6	mg/kg
Barium	Subsurface Soil	27	1	709.33	1110.00	98.00	141.26	26400	--	mg/kg
Barium	Surface Soil	17	100	754.24	988.00	98.00	141.26	26400	--	mg/kg
Benzo(a)anthracene	Subsurface Soil	11	1	149.82	450.00	50.00	NA	34900	800000	ug/kg
Benzo(a)anthracene	Surface Soil	6	100	144.83	370.00	46.00	NA	34900	800000	ug/kg
Benzo(a)pyrene	Subsurface Soil	6	1	325.00	740.00	65.00	NA	3490	25700	ug/kg
Benzo(a)pyrene	Surface Soil	5	100	266.60	640.00	60.00	NA	3490	25700	ug/kg
Benzo(b)fluoranthene	Subsurface Soil	4	1	97.00	130.00	76.00	NA	34900	1010000	ug/kg
Benzo(b)fluoranthene	Surface Soil	1	100	180.00	180.00	66.00	NA	34900	1010000	ug/kg
Benzo(k)fluoranthene	Subsurface Soil	3	1	101.67	130.00	82.00	NA	349000	1010000	ug/kg
bis(2-Ethylhexyl)phthalate	Subsurface Soil	1	1	100.00	100.00	83.00	NA	1970000	--	ug/kg
Chrysene	Subsurface Soil	13	1	223.62	970.00	43.00	NA	3490000	--	ug/kg
Chrysene	Surface Soil	9	89	199.44	810.00	42.00	NA	3490000	--	ug/kg
Copper	Subsurface Soil	21	1	87.62	160.00	4.00	18.06	40900	--	mg/kg
Copper	Surface Soil	18	100	90.17	354.00	4.00	18.06	40900	--	mg/kg
Dibenz(a,h)anthracene	Surface Soil	2	100	160.00	190.00	65.00	NA	3490	--	ug/kg
Ethylbenzene	Surface Soil	1	0	1.50	1.50	5.43	NA	4250000	--	ug/kg
Fluoranthene	Subsurface Soil	9	1	185.00	540.00	49.00	NA	27200000	--	ug/kg
Fluoranthene	Surface Soil	6	100	94.33	170.00	48.00	NA	27200000	--	ug/kg

Analyte	Media	No. of Samples Analyzed	Detection Frequency (%)	Average Concentration	Maximum Concentration	Detection Limit	Background Mean Plus 2SD	WRW AL	Ecological AL	Unit
Indeno(1,2,3-cd)pyrene	Subsurface Soil	2	1	58.00	69.00	53.00	NA	34900	--	ug/kg
Indeno(1,2,3-cd)pyrene	Surface Soil	2	100	119.50	140.00	46.00	NA	34900	--	ug/kg
Iron	Subsurface Soil	2	1	52750.00	61400.00	2190.00	18037.00	307000	--	mg/kg
Iron	Surface Soil	17	100	31788.24	58900.00	2190.00	18037.00	307000	--	mg/kg
Lead	Subsurface Soil	2	1	58.40	90.60	7.00	54.62	1000	25.6	mg/kg
Lithium	Surface Soil	2	100	12.00	12.00	0.14	11.55	20400	--	mg/kg
Manganese	Subsurface Soil	1	1	1050.00	1050.00	158.00	365.08	3480	--	mg/kg
Manganese	Surface Soil	10	100	633.00	1190.00	158.00	365.08	3480	--	mg/kg
Methylene chloride	Subsurface Soil	4	0.75	2.08	3.20	1.00	NA	2530000	39500	ug/kg
Methylene chloride	Surface Soil	3	100	1.90	2.90	0.98	NA	2530000	39500	ug/kg
Naphthalene	Subsurface Soil	10	0.4	4.29	12.00	6.50	NA	3090000	--	ug/kg
Naphthalene	Surface Soil	12	25	3.65	22.00	5.43	NA	3090000	--	ug/kg
Nickel	Surface Soil	18	100	37.64	61.10	12.00	14.91	20400	--	mg/kg
Plutonium-239/240**	Surface Soil	2	100	0.16	0.18	0.14	0.07	50	3800	pci/g
Pyrene	Subsurface Soil	11	1	152.45	370.00	71.00	NA	22100000	--	ug/kg
Pyrene	Surface Soil	8	88	91.88	160.00	69.00	NA	22100000	--	ug/kg
Strontium	Subsurface Soil	4	1	375.00	481.00	20.00	48.94	613000	--	mg/kg
Strontium	Surface Soil	18	100	268.00	570.00	20.00	48.94	613000	--	mg/kg
Tetrachloroethene	Subsurface Soil	1	0	2.80	2.80	5.61	NA	615000	529000	ug/kg
Toluene	Subsurface Soil	4	0	1.88	2.30	5.87	NA	31300000	329000	ug/kg
Toluene	Surface Soil	6	0	1.63	1.80	6.01	NA	31300000	329000	ug/kg
Uranium-235	Subsurface Soil	24	1	0.22	0.31	9.56	0.09	8	1900	pci/g
Uranium-235	Surface Soil	16	100	0.22	0.37	1.00	0.09	8	1900	pci/g
Uranium-238	Subsurface Soil	27	1	4.15	5.52	2.49	2.00	351	1600	pci/g
Uranium-238	Surface Soil	17	100	3.80	4.53	8.00	2.00	351	1600	pci/g
Vanadium	Subsurface Soil	25	1	155.21	189.00	31.00	45.59	7150	292	mg/kg
Vanadium	Surface Soil	17	100	114.67	191.00	31.00	45.59	7150	292	mg/kg
Xylene	Surface Soil	1	0	7.30	7.30	10.90	NA	1000000000	--	ug/kg

** Plutonium was analyzed via alpha spectroscopy.

SD = standard deviation; WRW = Wildlife Refuge Worker; AL= action level

2.1 Analytical Results

Analytical results indicate that soil contaminants are present at concentrations less than the RFCA soil Wildlife Refuge Worker (WRW) ALs (DOE et al 2003), with the following exception:

- The arsenic concentration at Location BZ45-003 (0 – 0.5 ft below the Building 374 slab) is 23.9 mg/kg, and the AL is 22.2 mg/kg.

All contaminant concentrations are less than the ALs for ecological receptors, with the following three exceptions:

- The arsenic concentration at Location BZ45-003 (0 – 0.5 ft below the Building 374 slab) is 23.9 mg/kg, and the AL is 21.6 mg/kg.
- The lead concentration at Location BX45-007 (3.4 – 3.9 ft below the Building 371 slab) is 26.2 mg/kg, and the AL is 25.6 mg/kg.
- The lead concentration at Location BX46-004 (0 – 0.5 ft below the Building 371 slab) is 90.6 mg/kg, and the AL is 25.6 mg/kg.

The arsenic concentrations are very close to its ALs and are within the background range. The lead exceedances occurred below the Building 371 slab and are many feet below grade. These are addressed in the Subsurface Soil Risk Screen discussion (Section 4.0).

AL exceedances are shown in bold in Table 3. Sampling locations and analytical results greater than the background means plus two standard deviations or RLs are shown on Figures 3 and 4. Figure 3 presents data from the eastern portion of the IHSS Groups, and Figure 4 presents data from the western portion of the IHSS Groups. The raw data, as of June 26, 2003, are included in the enclosed compact disc.

2.2 Sums of Ratios

RFCA sums of ratios (SORs) were calculated for radionuclides at sampling locations within IHSS Groups 300-3 and 300-4. SOR calculations were based on accelerated action analytical data for the radionuclides of concern (americium-241, plutonium-239/240, uranium-234, uranium-235, and uranium-238) with concentrations greater than background means plus two standard deviations or RLs. Table 5 presents the SORs for surface and subsurface soil. All SORs for radionuclides are less than 1.

3.0 DEVIATIONS FROM PLANNED SAMPLING SPECIFICATIONS

Deviations from planned sampling locations described in IASAP Addendum #IA-03-01 (DOE 2002) are presented in Table 6. The actual eastings and northings under the UBCs are estimated. Eight of the eleven biased exterior sampling locations were eliminated based on actual field conditions and in consultation with the Lead Regulatory Agency. These locations were originally targeted adjacent to foundation, storm and other drains. However, the drains near the sampling locations do not, or no longer, exist, or were much deeper than originally thought during the planning phase (15 to 30 feet below ground surface). In addition, the native soil from three sampling locations under the building slabs.

Table 5
RFCA Sums of Ratios Based on IHSS Radionuclide Concentrations

Location	Surface Soil SOR	Subsurface Soil SOR
BW45-000	0.043	NA
BW45-001	0.041	NA
BW45-002	0.046	NA
BW45-003	0.046	0.074
BW45-004	0.042	0.080
BW46-000	0.048	NA
BW46-001	0.010	NA
BX45-000	0.049	NA
BX45-001	0.029	NA
BX45-002	0.049	NA
BX45-003	0.032	NA
BX45-004	0.039	NA
BX45-005	0.044	NA
BX45-006	0.039	NA
BX45-007	0.048	NA
BX45-008	0.031	NA
BX46-000	0.042	NA
BX46-001	0.009	NA
BX46-002	0.024	NA
BX46-003	0.041	NA
BX46-004	0.031	NA
BX46-005	0.039	NA
BY45-000	0.045	NA
BY45-001	0.040	NA
BY45-002	0.035	NA
BY45-003	0.049	NA
BY45-004	0.015	NA
BY45-005	0.010	NA
BY45-006	0.038	NA
BY45-007	0.010	NA
BY45-008	0.032	NA
BY46-000	0.039	NA
BY46-001	0.010	NA
BY46-002	0.091	NA
BZ45-000	0.035	NA
BZ45-001	0.034	NA
BZ45-002	0.037	NA
BZ45-003	0.034	NA
BZ45-005	NA	0.103

NA – Not applicable. Contaminant may be present but at a concentration below background mean plus two standard deviations or RL. Also, subsurface samples may not have been collected.

Table 6
IHSS Groups 300-3 and 300-4 Deviations from Planned Sampling Specifications

Location Code	Easting Planned	Northing Planned	Easting Actual	Northing Actual	Comments
BW45-000	2082104.297	750506.110	2082104.297	750506.110	No change
BW45-001	2082104.297	750506.110	2082070.001	750444.377	No significant change
BW45-002	2082099.398	750381.664	2082099.398	750381.664	No change
BW45-003	2082050.403	750514.929	2082052.173	750550.682	No significant change
BW45-004	2082050.403	750493.372	2082050.091	750441.012	No significant change
BW45-005	2082066.082	750433.599			Location deleted in accordance with Contact Record dated 05/15/03
BW46-000	2082108.217	750628.596	2082087.057	750626.001	No significant change
BW46-001	2082070.001	750568.823	2082070.001	750568.823	No change
BW46-002	2082117.036	750658.973			Location deleted in accordance with Contact Record dated 05/15/03
BX44-000	2082289.496	7504361.087			Location deleted in accordance with Contact Record dated 05/15/03
BX45-000	2082137.614	750443.397	2082137.614	750443.397	No change
BX45-001	2082170.930	750383.624	2082170.331	750413.767	28" of concrete encountered; location moved 20 ft north
BX45-002	2082175.829	750504.150	2082175.829	750504.150	No change
BX45-003	2082248.341	750502.191	2082286.469	750466.459	Concrete encountered; location moved
BX45-004	2082210.125	750441.438	2082210.125	750441.438	No change
BX45-005	2082244.421	750383.624	2082244.421	750383.624	No change
BX45-006	2082281.657	750437.518	2082276.666	750428.735	No significant change
BX45-007	2082319.873	750498.271	2082319.873	750498.271	No change
BX45-008	2082314.973	750373.825	2082314.973	750373.825	No change
BX46-000	2082142.513	750567.843	2082142.513	750567.843	No change
BX46-001	2082179.749	750629.576	2082179.749	750629.576	No change
BX46-002	2082214.045	750564.904	2082214.045	750564.904	No change
BX46-003	2082286.556	750561.964	2082286.157	750579.132	No significant change
BX46-004	2082250.301	750626.636	2082223.552	750627.834	Location moved to avoid airborne/high contamination area
BX46-005	2082324.772	750623.697	2082288.041	750623.298	No significant change
BY45-000	2082354.169	750435.558	2082353.570	750429.370	No significant change
BY45-001	2082387.485	750371.866	2082387.485	750371.866	No change
BY45-002	2082427.660	750432.619	2082427.660	750432.619	No change
BY45-003	2082390.425	750495.331	2082390.425	750495.331	No change
BY45-004	2082431.580	750556.085	2082431.580	750556.085	No change
BY45-005	2082462.936	750493.372	2082462.936	750493.372	No change
BY45-006	2082499.192	750429.679	2082524.344	750429.879	Location moved east of dock outside of Bldg 374
BY45-007	2082504.092	750552.165	2082504.092	750552.165	No change
BY45-008	2082535.448	750490.432	2082568.186	750490.831	Location offset 30 ft east under stairwell
BY45-009	2082520.750	750430.659			Location deleted in accordance with Contact Record dated 05/15/03
BY46-000	2082356.129	750561.964	2082356.129	750561.964	No change

Location Code	Easting Planned	Northing Planned	Easting Actual	Northing Actual	Comments
BY46-001	2082396.304	750621.737	2082379.935	750591.993	No significant change
BY46-002	2082468.816	750616.838	2082468.816	750627.019	Location moved north of dock outside of Bldg 371
BY46-003	2082404.143	750628.596			Location deleted in accordance with Contact Record dated 05/15/03
BY46-004	2082494.293	750602.139			Location deleted in accordance with Contact Record dated 05/15/03
BZ45-000	2082573.664	750548.245	2082573.664	750548.245	No change
BZ45-001	2082608.940	750488.472	2082644.672	750508.834	Encountered concrete; location moved to Rm 2801
BZ45-002	2082647.155	750549.225	2082647.155	750549.225	No change
BZ45-003	2082707.908	750548.245	2082707.908	750548.245	No change
BZ45-004	2082657.934	750415.961			Location deleted in accordance with Contact Record dated 05/15/03
BZ45-005	2082550.260	750448.241	2082554.764	750395.702	No significant change
BZ46-000	2082659.894	750601.159			Location deleted in accordance with Contact Record dated 05/15/03

(BY45-000, BY4600 and BZ45-001) could not be sampled because of the presence of a thick layer of fine-grained construction sand (non-native material). Only sand samples were obtained. Also, sand was mixed with clay in the sample from Location BX45-000. See footnotes at the bottom of Table 3. Related Regulatory Contact Records are presented in Appendix A.

4.0 SUBSURFACE SOIL RISK SCREEN

The subsurface soil risk screen follows the steps identified on Figure 3 in Attachment 5 of RFCA (DOE et al 2003).

Screen 1 – Are the contaminant of concern (COC) concentrations below RFCA Table 3 WRW Soil Action Levels?

No. As shown in Table 3 and on Figures 3 and 4, analytical results indicate that subsurface contaminant concentrations are less than the RFCA WRW ALs (DOE et al 2003), with the following exception:

- The arsenic concentration at Location BZ45-003 (0 – 0.5 ft below the Building 374 slab) is 23.9 mg/kg, and the AL is 22.2 mg/kg.

Screen 2 – Is there a potential for subsurface soil to become surface soil (landslides and erosion areas identified on Figure 1 of the proposed RFCA Modification)?

IHSS Groups 300-3 and 300-4 are not located in an area susceptible to landslides or high erosion (Figure 1; DOE et al 2003). In addition, soil below the building slabs is located many feet below grade and is not exposed to erosional forces.

Screen 3 – Does subsurface soil contamination for radionuclides exceed criteria defined in Section 5.3 and Attachment 14?

No. As shown in Table 3, radionuclide activities in soil are below 1 nanocurie per gram (nCi/g).

Screen 4 – Is there an environmental pathway and sufficient quantity of COCs that would cause an exceedance of surface water standards?

Migration via erosion and groundwater are the two possible pathways whereby surface water could become contaminated by soil from IHSS Groups 300-3 and 300-4. Surface water and groundwater from IHSS Groups 300-3 and 300-4 flow towards North Walnut Creek. The distance from the northeast corner of Building 374 to North Walnut Creek at Monitoring Station SW 093 is approximately 2,900 feet. If COCs (radionuclides, metals, VOCs and SVOCs at relatively low concentrations) were to migrate to this surface water, either via erosion or groundwater transport, their concentrations at that point would most probably be too low to cause an exceedance of water quality standards. During transport, the metals of concern (arsenic and lead) would adsorb onto soil.

Based on historical and recent data, IHSS Groups 300-3 and 300-4 do not possess sources of groundwater contamination, and no contaminant plumes are in the area, as shown on the Site plume location map (Dyncorp 2002). Further groundwater evaluation will be conducted as part of the groundwater plume remedial decision and future sitewide evaluation.

Screen 5 – Are COC concentrations below Table 3 Soil ALs for ecological receptors?

No. Subsurface COC concentrations are below the ALs for ecological receptors, with the following three exceptions:

- The arsenic concentration at Location BZ45-003 (below the Building 374 ground-floor slab) is 23.9 mg/kg, and the AL is 21.6 mg/kg. The key receptor is the Prairie Dog.
- The lead concentration at Location BX45-007 (below the Building 371 sub-basement slab) is 26.2 mg/kg, and the AL is 25.6 mg/kg. The key receptor is the Kestrel.
- The lead concentration at Location BX46-004 (below the Building 371 basement slab) is 90.6 mg/kg, and the AL is 25.6 mg/kg. The key receptor is the Kestrel.

The arsenic concentration is within the RFETS background range (refer to December 17, 2002 RFETS ER Regulatory Contact Record). The lead concentrations are below basement and subbasement slabs, more than 12 and 24 feet below ground surface, respectively, and not directly accessible to the target species (the Kestrel). Also the basement and sub-basement slabs will be kept in place, further reducing the likelihood that ecological receptors will come into contact with the lead.

5.0 NFAA SUMMARY

Analytical results and the subsurface soil risk screen indicate that an NFAA determination is justified for IHSS Groups 300-3 and 300-4 because of the following:

- Arsenic was detected within the RFETS background range; and
- The two elevated lead concentrations are below the Building 371 slab and well below the surface.

Approval of this Data Summary Report constitutes regulatory agency concurrence that these IHSS Groups are NFAA sites. This information and the NFAA determinations will be documented in the FY03 HRR. Further evaluation will be conducted as part of the Sitewide Comprehensive Risk Assessment and the Integrated Monitoring Program.

6.0 DATA QUALITY ASSESSMENT

The Data Quality Objectives (DQOs) for this project are described in the IASAP (DOE 2001). All DQOs for this project were achieved based on the following:

- Regulatory agency approved sampling program design (IASAP Addendum 03-01 [DOE 2002]);
- Samples were collected in accordance with the sampling design; and
- Data Quality Assessment was conducted as documented in the following sections.

6.1 Data Quality Assessment Process

The DQA process ensures that the type, quantity and quality of environmental data used in decision making are defensible, and is based on the following guidance and requirements:

- EPA QA/G-4, 1994a, Guidance for the Data Quality Objective Process;
- EPA QA/G-9, 1998, Guidance for the Data Quality Assessment Process; Practical Methods for Data Analysis; and
- DOE Order 414.1A, 1999, Quality Assurance.

Verification and validation (V&V) of the data are the primary components of the DQA. The final data are compared with original project DQOs and evaluated with respect to project decisions, uncertainty within the decisions, and quality criteria required for the data, specifically precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). Validation criteria are consistent with the following RFETS-specific documents and industry guidelines:

- EPA 540/R-94/012, 1994b, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review;
- EPA 540/R-94/013, 1994c, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review; and
- Kaiser-Hill Company, L.L.C.(K-H) V&V Guidelines:
 - General Guidelines for Data Verification and Validation, DA-GR01-v1, 2002a.

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- V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v1, 2002b.
 - V&V Guidelines for Volatile Organics, DA-SS01-v1, 2002c.
 - V&V Guidelines for Semivolatile Organics, DA-SS02-v1, 2002d.
 - V&V Guidelines for Metals, DA-SS05-v1, 2002e.
- Lockheed-Martin, 1997, Evaluation of Radiochemical Data Usability, ES/ER/MS-5.
- This report will be submitted to the Comprehensive Environmental, Response, Compensation and Liability Act (CERCLA) Administrative Record (AR) for permanent storage 30 days after being provided to CDPHE and U.S. EPA.

6.2 Verification and Validation of Results

Verification ensures that data produced and used by the project are documented and traceable in accordance with quality requirements. Validation consists of a technical review of all data that directly support the project decisions so that any limitations of the data relative to project goals are delineated and the associated data are qualified accordingly. The V&V process defines the criteria that constitute data quality, namely PARCCS parameters. Data traceability and archival are also addressed. V&V criteria include the following:

- Chain-of-custody;
- Preservation and hold-times;
- Instrument calibrations;
- Preparation blanks;
- Interference check samples (metals);
- Matrix spikes/matrix spike duplicates (MS/MSD);
- Laboratory control samples (LCS);
- Field duplicate measurements;
- Chemical yield (radiochemistry);
- Required quantitation limits/minimum detectable activities (sensitivity of chemical and radiochemical measurements, respectively); and
- Sample analysis and preparation methods.

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Evaluation of V&V criteria ensures that PARCCS parameters are satisfactory (i.e., within tolerances acceptable to the project). Satisfactory V&V of laboratory quality controls are captured through application of validation “flags” or qualifiers to individual records.

Raw hardcopy data (e.g., individual analytical data packages) are currently filed by RIN and are maintained by Kaiser-Hill Analytical Services Division; older hardcopies may reside in the Federal Center in Lakewood, Colorado. Electronic data are stored in the RFETS Soil and Water Database.

The data sets addressed in this report are included on the enclosed compact disc in Microsoft ACCESS 2000 format: (Filename: 300-3&4_062603.mdb, tables “SWD&LIMS_dqa_real_data_300-3&4_062603” and “SWD&LIMS_dqa_qc_data_300-3&4_062603”).

6.2.1 Accuracy

The following measures of accuracy were evaluated:

- Laboratory Control Samples;
- Surrogates;
- Blanks; and
- Matrix Spikes.

Results are compared to method requirements and project goals. The results of these comparisons are summarized for RFCA COCs where the result could impact project decisions. Particular attention is paid to those values near ALs when QC results could indicate unacceptable levels of uncertainty for decision-making purposes.

Laboratory Control Sample Evaluation

The frequency of LCS measurements, relative to each laboratory batch, is given in Table 7. LCS frequency was adequate based on at least one LCS per batch. The minimum and maximum LCS results are also tabulated, by chemical, for the entire project. Any qualifications of results due to LCS performance exceeding upper or lower tolerance limits are captured in the V&V flags, described in the Completeness Section.

Surrogate Evaluation

The frequency of surrogate measurements, relative to each laboratory batch, is given in Table 8. Surrogate frequency was adequate based on at least one set per sample. The minimum and maximum surrogate results are also tabulated, by chemical, for the entire project. Any qualifications of results due to surrogate results are captured in the V&V flags, described in the Completeness Section.

Field Blank Evaluation

Results of the blank analyses are given in Table 9. Detectable amounts of contaminants within the blanks, which could indicate possible cross-contamination of samples, are evaluated if the same contaminant is detected in the associated real samples. When the

real result is less than 10 times the blank result for laboratory contaminants (5 times the result for non-laboratory contaminants), the real result is disqualified. None of the chemicals detected in blanks were detected in real samples where the real sample concentration exceeded ALs, therefore, no significant laboratory blank contamination is indicated.

Table 7
Laboratory Control Sample Evaluation

Test Method Name	CAS No.	Analyte	Result Type	Minimum	Maximum	Unit	No. of Lab Samples	No. of Lab Batches
SW-846 6010	7429-90-5	Aluminum	LC	87	97	%REC	3	3
SW-846 6010	7440-36-0	Antimony	LC	89	96	%REC	3	3
SW-846 6010	7440-38-2	Arsenic	LC	90	99	%REC	3	3
SW-846 6010	7440-39-3	Barium	LC	94	98	%REC	3	3
SW-846 6010	7440-41-7	Beryllium	LC	95	98	%REC	3	3
SW-846 6010	7440-42-8	Boron	LC	92	95	%REC	3	3
SW-846 6010	7440-43-9	Cadmium	LC	91	96	%REC	3	3
SW-846 6010	7440-70-2	Calcium	LC	94	98	%REC	3	3
SW-846 6010	18540-29-9	Chromium VI	LC	92	100	%REC	3	3
SW-846 6010	7440-48-4	Cobalt	LC	89	98	%REC	3	3
SW-846 6010	7440-50-8	Copper	LC	90	107	%REC	3	3
SW-846 6010	7439-89-6	Iron	LC	93	98	%REC	3	3
SW-846 6010	7439-92-1	Lead	LC	91	99	%REC	3	3
SW-846 6010	7439-93-2	Lithium	LC	90	100	%REC	3	3
SW-846 6010	7439-95-4	Magnesium	LC	94	100	%REC	3	3
SW-846 6010	7439-96-5	Manganese	LC	91	99	%REC	3	3
SW-846 6010	7439-97-6	Mercury	LC	100	102	%REC	3	3
SW-846 6010	7439-98-7	Molybdenum	LC	87	93	%REC	3	3
SW-846 6010	7440-02-0	Nickel	LC	91	98	%REC	3	3
SW-846 6010	7440-09-7	Potassium	LC	90	98	%REC	3	3
SW-846 6010	7782-49-2	Selenium	LC	88	101	%REC	3	3
SW-846 6010	7631-86-9	Silica As SiO ₂ , Dissolved	LC	9.3	19	%REC	3	3
SW-846 6010	7440-22-4	Silver	LC	91	104	%REC	3	3
SW-846 6010	7440-23-5	Sodium	LC	93	99	%REC	3	3
SW-846 6010	7440-24-6	Strontium	LC	94	98	%REC	3	3
SW-846 6010	7440-28-0	Thallium	LC	88	97	%REC	3	3
SW-846 6010	7440-31-5	Tin	LC	89	97	%REC	3	3
SW-846 6010	7440-32-6	Titanium	LC	93	101	%REC	3	3
SW-846 6010	7103-29-7	Uranium	LC	96	102	%REC	3	3
SW-846 6010	7440-62-2	Vanadium	LC	91	99	%REC	3	3
SW-846 6010	7440-66-6	Zinc	LC	90	98	%REC	3	3
SW-846 8260	78-93-3	2-Butanone	LC	67.45	96.26	%REC	17	17
SW-846 8260	95-49-8	2-Chlorotoluene	LC	82	102	%REC	16	16
SW-846 8260	591-78-6	2-Hexanone	LC	74.95	106.4	%REC	16	16

Test Method Name	CAS No.	Analyte	Result Type	Minimum	Maximum	Unit	No. of Lab Samples	No. of Lab Batches
SW-846 8260	460-00-4	4-Bromofluorobenzene	LC	89.29	111.96	%REC	11	11
SW-846 8260	106-43-4	4-Chlorotoluene	LC	81	104.2	%REC	16	16
SW-846 8260	99-87-6	4-Isopropyltoluene	LC	80	108.9	%REC	16	16
SW-846 8260	108-10-1	4-Methyl-2-pentanone	LC	81	111.1	%REC	16	16
SW-846 8260	67-64-1	Acetone	LC	53.21	79	%REC	17	17
SW-846 8260	71-43-2	Benzene	LC	79	96.15	%REC	16	16
SW-846 8260	108-86-1	Bromobenzene	LC	84	106.4	%REC	16	16
SW-846 8260	74-97-5	Bromochloromethane	LC	85.53	105	%REC	16	16
SW-846 8260	75-27-4	Bromodichloromethane	LC	90	103	%REC	16	16
SW-846 8260	75-25-2	Bromoform	LC	90.61	108.8	%REC	16	16
SW-846 8260	74-83-9	Bromomethane	LC	74.63	135.1	%REC	16	16
SW-846 8260	75-15-0	Carbon Disulfide	LC	70	114.5	%REC	16	16
SW-846 8260	56-23-5	Carbon Tetrachloride	LC	88.98	105	%REC	16	16
SW-846 8260	108-90-7	Chlorobenzene	LC	85	104.2	%REC	16	16
SW-846 8260	3114-55-4	Chlorobenzene-d5	LC	100	100	%REC	3	3
SW-846 8260	75-00-3	Chloroethane	LC	88	131.9	%REC	16	16
SW-846 8260	67-66-3	Chloroform	LC	84.6	101	%REC	16	16
SW-846 8260	74-87-3	Chloromethane	LC	61.73	143.5	%REC	16	16
SW-846 8260	124-48-1	Dibromochloromethane	LC	90.91	107.3	%REC	16	16
SW-846 8260	74-95-3	Dibromomethane	LC	84	102	%REC	16	16
SW-846 8260	75-71-8	Dichlorodifluoromethane	LC	41.67	416.7	%REC	16	16
SW-846 8260	100-41-4	Ethylbenzene	LC	83	102	%REC	16	16
SW-846 8260	462-06-6	Fluorobenzene	LC	100	100	%REC	3	3
SW-846 8260	87-68-3	Hexachlorobutadiene	LC	85.22	106	%REC	16	16
SW-846 8260	98-82-8	Isopropylbenzene	LC	81	108.7	%REC	16	16
SW-846 8260	541-73-1	m-Dichlorobenzene	LC	86	105	%REC	13	13
SW-846 8260	75-09-2	Methylene chloride	LC	79	99	%REC	16	16
SW-846 8260	91-20-3	Naphthalene	LC	78	113.6	%REC	16	16
SW-846 8260	104-51-8	n-Butylbenzene	LC	77	104.2	%REC	16	16
SW-846 8260	103-65-1	n-Propylbenzene	LC	80	102.6	%REC	16	16
SW-846 8260	135-98-8	sec-Butylbenzene	LC	79	100.2	%REC	16	16
SW-846 8260	100-42-5	Styrene	LC	83	101	%REC	16	16
SW-846 8260	98-06-6	tert-Butylbenzene	LC	81	104.8	%REC	16	16
SW-846 8260	127-18-4	Tetrachloroethene	LC	90.91	104.2	%REC	16	16
SW-846 8260	108-88-3	Toluene	LC	79	102	%REC	15	15
SW-846 8260	2037-26-5	Toluene-D8	LC	85.82	116.3	%REC	11	11
SW-846 8260	79-01-6	Trichloroethene	LC	89.29	102	%REC	16	16
SW-846 8260	75-69-4	Trichlorofluoromethane	LC	84.75	131.6	%REC	16	16
SW-846 8260	75-01-4	Vinyl chloride	LC	80.65	168.7	%REC	16	16
SW-846 8260	1330-20-7	Xylene	LC	83	107.1	%REC	16	16
SW-846 8260	71-55-6	1,1,1-Trichloroethane	LC	87.97	100	%REC	16	16
SW-846 8260	630-20-6	1,1,1,2-Tetrachloroethane	LC	89.29	105	%REC	16	16

Test Method Name	CAS No.	Analyte	Result Type	Minimum	Maximum	Unit	No. of Lab Samples	No. of Lab Batches
SW-846 8260	79-00-5	1,1,2-Trichloroethane	LC	79	97.07	%REC	16	16
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	LC	71	99.84	%REC	16	16
SW-846 8260	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	LC	79.37	111.7	%REC	11	11
SW-846 8260	87-61-6	1,2,3-Trichlorobenzene	LC	85	106.7	%REC	16	16
SW-846 8260	96-18-4	1,2,3-Trichloropropane	LC	81	102	%REC	16	16
SW-846 8260	156-59-2	cis-1,2-Dichloroethene	LC	79	95	%REC	16	16
SW-846 8260	156-60-5	trans-1,2-Dichloroethene	LC	83	102.1	%REC	16	16
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	LC	71.43	103	%REC	16	16
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	LC	90	106.4	%REC	16	16
SW-846 8260	75-34-3	1,1-Dichloroethane	LC	83	106	%REC	16	16
SW-846 8260	75-35-4	1,1-Dichloroethene	LC	77	113.6	%REC	16	16
SW-846 8260	563-58-6	1,1-Dichloropropene	LC	83	94	%REC	16	16
SW-846 8260	96-12-8	1,2-Dibromo-3-Chloropropane	LC	77.6	107.4	%REC	16	16
SW-846 8260	106-93-4	1,2-Dibromoethane	LC	83.51	100	%REC	16	16
SW-846 8260	95-50-1	1,2-Dichlorobenzene	LC	84	107.4	%REC	16	16
SW-846 8260	107-06-2	1,2-Dichloroethane	LC	79.52	102	%REC	16	16
SW-846 8260	17060-07-0	1,2-Dichloroethane-D4	LC	91.18	119.58	%REC	11	11
SW-846 8260	78-87-5	1,2-Dichloropropane	LC	79	101	%REC	16	16
SW-846 8260	541-73-1	1,3-Dichlorobenzene	LC	100	104.2	%REC	3	3
SW-846 8260	142-28-9	1,3-Dichloropropane	LC	81	100	%REC	16	16
SW-846 8260	106-46-7	1,4-Dichlorobenzene	LC	81	105	%REC	16	16
SW-846 8260	3855-82-1	1,4-Dichlorobenzene-d4	LC	100	100	%REC	3	3
SW-846 8260	594-20-7	2,2-Dichloropropane	LC	86.61	114.3	%REC	16	16
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	LC	86	106.4	%REC	16	16
SW-846 8260	95-63-6	1,2,4-Trimethylbenzene	LC	80	100.5	%REC	16	16
SW-846 8260	108-67-8	1,3,5-Trimethylbenzene	LC	79	104.2	%REC	15	15
SW-846 8270	91-58-7	2-Chloronaphthalene	LC	65	80	%REC	22	22
SW-846 8270	95-57-8	2-Chlorophenol	LC	69	84	%REC	22	22
SW-846 8270	91-57-6	2-Methylnaphthalene	LC	66	79	%REC	22	22
SW-846 8270	95-48-7	2-Methylphenol	LC	67	80	%REC	22	22
SW-846 8270	88-74-4	2-Nitroaniline	LC	65	79	%REC	22	22
SW-846 8270	99-09-2	3-Nitroaniline	LC	37	65	%REC	22	22
SW-846 8270	101-55-3	4-Bromophenyl Phenyl Ether	LC	61	79	%REC	22	22
SW-846 8270	59-50-7	4-Chloro-3-Methylphenol	LC	67	82	%REC	22	22
SW-846 8270	106-47-8	4-Chloroaniline	LC	19	67	%REC	22	22
SW-846 8270	7005-72-3	4-Chlorophenyl-Phenyl Ether	LC	63	81	%REC	22	22
SW-846 8270	106-44-5	4-Methylphenol	LC	68	83	%REC	22	22
SW-846 8270	100-02-7	4-Nitrophenol	LC	51	91	%REC	22	22
SW-846 8270	83-32-9	Acenaphthene	LC	64	80	%REC	22	22
SW-846 8270	208-96-8	Acenaphthylene	LC	65	83	%REC	22	22
SW-846 8270	120-12-7	Anthracene	LC	64	80	%REC	22	22

Test Method Name	CAS No.	Analyte	Result Type	Minimum	Maximum	Unit	No. of Lab Samples	No. of Lab Batches
SW-846 8270	56-55-3	Benzo(a)anthracene	LC	58	80	%REC	22	22
SW-846 8270	50-32-8	Benzo(a)pyrene	LC	62	83	%REC	22	22
SW-846 8270	205-99-2	Benzo(b)fluoranthene	LC	62	84	%REC	22	22
SW-846 8270	191-24-2	Benzo(g,h,i)perylene	LC	56	82	%REC	22	22
SW-846 8270	207-08-9	Benzo(k)fluoranthene	LC	57	85	%REC	22	22
SW-846 8270	65-85-0	Benzoic Acid	LC	28	67	%REC	22	22
SW-846 8270	100-51-6	Benzyl Alcohol	LC	55	91	%REC	22	22
SW-846 8270	111-91-1	bis(2-Chloroethoxy) Methane	LC	65	80	%REC	22	22
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	LC	62	89	%REC	22	22
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	LC	64	83	%REC	22	22
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	LC	60	82	%REC	22	22
SW-846 8270	85-68-7	Butylbenzylphthalate	LC	63	82	%REC	22	22
SW-846 8270	218-01-9	Chrysene	LC	61	84	%REC	22	22
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	LC	59	92	%REC	22	22
SW-846 8270	132-64-9	Dibenzofuran	LC	64	81	%REC	22	22
SW-846 8270	84-66-2	Diethylphthalate	LC	66	82	%REC	22	22
SW-846 8270	131-11-3	Dimethylphthalate	LC	63	79	%REC	22	22
SW-846 8270	84-74-2	Di-n-butylphthalate	LC	68	82	%REC	22	22
SW-846 8270	117-84-0	Di-n-octylphthalate	LC	56	78	%REC	22	22
SW-846 8270	206-44-0	Fluoranthene	LC	64	78	%REC	22	22
SW-846 8270	86-73-7	Fluorene	LC	64	81	%REC	22	22
SW-846 8270	118-74-1	Hexachlorobenzene	LC	61	82	%REC	22	22
SW-846 8270	87-68-3	Hexachlorobutadiene	LC	63	85	%REC	22	22
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	LC	37	84	%REC	22	22
SW-846 8270	67-72-1	Hexachloroethane	LC	66	79	%REC	22	22
SW-846 8270	78-59-1	Isophorone	LC	87	104	%REC	22	22
SW-846 8270	541-73-1	m-Dichlorobenzene	LC	64	77	%REC	22	22
SW-846 8270	91-20-3	Naphthalene	LC	66	79	%REC	22	22
SW-846 8270	98-95-3	Nitrobenzene	LC	66	81	%REC	22	22
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	LC	75	95	%REC	22	22
SW-846 8270	621-64-7	n-Nitrosodipropylamine	LC	65	82	%REC	22	22
SW-846 8270	88-75-5	o-Nitrophenol	LC	70	82	%REC	22	22
SW-846 8270	87-86-5	Pentachlorophenol	LC	33	75	%REC	22	22
SW-846 8270	85-01-8	Phenanthrene	LC	61	79	%REC	22	22
SW-846 8270	108-95-2	Phenol	LC	66	84	%REC	22	22
SW-846 8270	100-01-6	p-Nitroaniline	LC	55	80	%REC	22	22
SW-846 8270	129-00-0	Pyrene	LC	60	83	%REC	22	22
SW-846 8270	110-86-1	Pyridine	LC	57	74	%REC	22	22
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	LC	59	84	%REC	22	22
SW-846 8270	120-83-2	2,4-Dichlorophenol	LC	65	81	%REC	22	22
SW-846 8270	105-67-9	2,4-Dimethylphenol	LC	68	81	%REC	22	22
SW-846 8270	51-28-5	2,4-Dinitrophenol	LC	25	88	%REC	22	22

Test Method Name	CAS No.	Analyte	Result Type	Minimum	Maximum	Unit	No. of Lab Samples	No. of Lab Batches
SW-846 8270	121-14-2	2,4-Dinitrotoluene	LC	66	84	%REC	22	22
SW-846 8270	606-20-2	2,6-Dinitrotoluene	LC	69	82	%REC	22	22
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	LC	39	68	%REC	22	22
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	LC	35	81	%REC	22	22
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	LC	66	78	%REC	22	22
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	LC	66	85	%REC	22	22
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	LC	67	85	%REC	22	22

Table 8
Surrogate Recovery Summary

VOC Surrogate Recoveries				
Number of Samples	Analyte	Minimum	Maximum	Unit Code
66	1,2-Dichloroethane-d4	80.95	116.4	%REC
66	4-Bromofluorobenzene	78.52	124	%REC
66	Toluene-d8	77.72	108.2	%REC
SVOC Surrogate Recoveries				
Number of Samples	Analyte	Minimum	Maximum	Unit Code
51	Terphenyl-d14	36	92	%REC
7	Chlorobenzene-d5	100	100	%REC
51	2-Fluorobiphenyl	36	79	%REC
51	2-Fluorophenol	40	83	%REC
51	Nitrobenzene-d5	38	80	%REC

Sample Matrix Spike Evaluation

The frequency of MS measurements, relative to each laboratory batch, was adequate based on at least one MS per batch. The minimum and maximum of MS results are summarized by chemical for the project in Table 10. Although low recovery values may indicate negative bias for some analytes, recovery values alone do not result in rejection of results. Qualifications of results due to spike recoveries out of tolerance are captured in electronic flagging of the results.

Table 9
Blank Summary

Test Method Name	CAS	Analyte	Maximum	Result Unit	# of Lab Samples	# of Lab Batches
SW-846 8260	67-64-1	Acetone	60	ug/kg	7	7
SW-846 6010	7440-70-2	Calcium	16	mg/kg	2	2
SW-846 6010	7631-86-9	Silica As SiO ₂ , Dissolved	3.8	mg/kg	1	1
SW-846 8260	75-09-2	Methylene chloride	2.3	ug/kg	5	5
SW-846 6010	7429-90-5	Aluminum	2.3	mg/kg	1	1
SW-846 8260	91-20-3	Naphthalene	2.2	ug/kg	4	4
SW-846 6010	7440-31-5	Tin	1.7	mg/kg	3	3
SW-846 6010	7439-89-6	Iron	1.6	mg/kg	1	1
SW-846 8260	108-88-3	Toluene	1.5	ug/kg	2	2
SW-846 6010	7440-66-6	Zinc	1.3	mg/kg	3	3
SW-846 6010	7440-42-8	Boron	0.86	mg/kg	3	3
SW-846 6010	7440-28-0	Thallium	0.74	mg/kg	2	2
SW-846 6010	7782-49-2	Selenium	0.5	mg/kg	1	1
SW-846 6010	7439-93-2	Lithium	0.18	mg/kg	1	1
SW-846 6010	7440-48-4	Cobalt	0.12	mg/kg	1	1
SW-846 6010	18540-29-9	Chromium VI	0.085	mg/kg	1	1
SW-846 6010	7440-24-6	Strontium	0.057	mg/kg	1	1
SW-846 6010	7439-96-5	Manganese	0.043	mg/kg	2	2

Table 10
Sample Matrix Spike Evaluation

Test Method Name	CAS	Analyte	Result Type	Minimum	Maximum	Unit	No. of Lab Samples	No. of Lab Batches
SW-846 6010	7429-90-5	Aluminum	MS	1800	4490	%REC	3	3
SW-846 6010	7440-36-0	Antimony	MS	36	60	%REC	3	3
SW-846 6010	7440-38-2	Arsenic	MS	88	97	%REC	3	3
SW-846 6010	7440-39-3	Barium	MS	97	107	%REC	3	3
SW-846 6010	7440-41-7	Beryllium	MS	97	99	%REC	3	3
SW-846 6010	7440-42-8	Boron	MS	91	93	%REC	3	3
SW-846 6010	7440-43-9	Cadmium	MS	87	93	%REC	3	3
SW-846 6010	7440-70-2	Calcium	MS	83	113	%REC	3	3
SW-846 6010	18540-29-9	Chromium VI	MS	105	247	%REC	3	3
SW-846 6010	7440-48-4	Cobalt	MS	87	96	%REC	3	3
SW-846 6010	7440-50-8	Copper	MS	89	105	%REC	3	3
SW-846 6010	7439-89-6	Iron	MS	932	2230	%REC	3	3
SW-846 6010	7439-92-1	Lead	MS	90	103	%REC	3	3
SW-846 6010	7439-93-2	Lithium	MS	94	104	%REC	3	3
SW-846 6010	7439-95-4	Magnesium	MS	105	111	%REC	3	3
SW-846 6010	7439-96-5	Manganese	MS	80	137	%REC	3	3

Test Method Name	CAS	Analyte	Result Type	Minimum	Maximum	Unit	No. of Lab Samples	No. of Lab Batches
SW-846 6010	7439-97-6	Mercury	MS	94	100	%REC	3	3
SW-846 6010	7439-98-7	Molybdenum	MS	82	88	%REC	3	3
SW-846 6010	7440-02-0	Nickel	MS	90	116	%REC	3	3
SW-846 6010	7440-09-7	Potassium	MS	107	123	%REC	3	3
SW-846 6010	7782-49-2	Selenium	MS	86	99	%REC	3	3
SW-846 6010	7631-86-9	Silica As SiO ₂ , Dissolved	MS	10	12	%REC	3	3
SW-846 6010	7440-22-4	Silver	MS	86	102	%REC	3	3
SW-846 6010	7440-23-5	Sodium	MS	93	98	%REC	3	3
SW-846 6010	7440-24-6	Strontium	MS	88	96	%REC	3	3
SW-846 6010	7440-28-0	Thallium	MS	85	93	%REC	3	3
SW-846 6010	7440-31-5	Tin	MS	83	91	%REC	3	3
SW-846 6010	7440-32-6	Titanium	MS	125	190	%REC	3	3
SW-846 6010	11-09-6	Uranium	MS	90	96	%REC	3	3
SW-846 6010	7440-62-2	Vanadium	MS	93	119	%REC	3	3
SW-846 6010	7440-66-6	Zinc	MS	89	101	%REC	3	3
SW-846 8260	630-20-6	1,1,1,2-Tetrachloroethane	MS	77.87	241.6	%REC	11	11
SW-846 8260	71-55-6	1,1,1-Trichloroethane	MS	78.44	221.9	%REC	11	11
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	MS	75	295.4	%REC	11	11
SW-846 8260	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	MS	74.8	166.3	%REC	7	7
SW-846 8260	79-00-5	1,1,2-Trichloroethane	MS	79.25	274.6	%REC	11	11
SW-846 8260	75-34-3	1,1-Dichloroethane	MS	80	220.7	%REC	11	11
SW-846 8260	75-35-4	1,1-Dichloroethene	MS	71	176.6	%REC	11	11
SW-846 8260	563-58-6	1,1-Dichloropropene	MS	77	232.6	%REC	11	11
SW-846 8260	87-61-6	1,2,3-Trichlorobenzene	MS	43.93	186.8	%REC	11	11
SW-846 8260	96-18-4	1,2,3-Trichloropropane	MS	78.21	294.4	%REC	11	11
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	MS	45.59	180.9	%REC	11	11
SW-846 8260	95-63-6	1,2,4-Trimethylbenzene	MS	77	230.3	%REC	11	11
SW-846 8260	96-12-8	1,2-Dibromo-3-Chloropropane	MS	72	282.5	%REC	11	11
SW-846 8260	106-93-4	1,2-Dibromoethane	MS	80	276.4	%REC	11	11
SW-846 8260	95-50-1	1,2-Dichlorobenzene	MS	68.66	227.1	%REC	11	11
SW-846 8260	107-06-2	1,2-Dichloroethane	MS	79.13	268.5	%REC	11	11
SW-846 8260	17060-07-0	1,2-Dichloroethane-D4	MS	82.62	101.3	%REC	7	7
SW-846 8260	78-87-5	1,2-Dichloropropane	MS	79.13	245.8	%REC	11	11
SW-846 8260	108-67-8	1,3,5-Trimethylbenzene	MS	75.16	221.2	%REC	11	11
SW-846 8260	142-28-9	1,3-Dichloropropane	MS	79.41	274.1	%REC	11	11
SW-846 8260	106-46-7	1,4-Dichlorobenzene	MS	69.17	223	%REC	11	11
SW-846 8260	3855-82-1	1,4-Dichlorobenzene-d4	MS	100	100	%REC	1	1
SW-846 8260	594-20-7	2,2-Dichloropropane	MS	79	226.2	%REC	11	11
SW-846 8260	78-93-3	2-Butanone	MS	75	130.4	%REC	11	11
SW-846 8260	95-49-8	2-Chlorotoluene	MS	74.7	224.8	%REC	11	11
SW-846 8260	591-78-6	2-Hexanone	MS	78	339.8	%REC	11	11

Test Method Name	CAS	Analyte	Result Type	Minimum	Maximum	Unit	No. of Lab Samples	No. of Lab Batches
SW-846 8260	460-00-4	4-Bromofluorobenzene	MS	80.79	100.1	%REC	7	7
SW-846 8260	106-43-4	4-Chlorotoluene	MS	74.28	221	%REC	11	11
SW-846 8260	99-87-6	4-Isopropyltoluene	MS	72.8	208.6	%REC	11	11
SW-846 8260	108-10-1	4-Methyl-2-pentanone	MS	71.8	98.16	%REC	11	11
SW-846 8260	67-64-1	Acetone	MS	56	151.6875	%REC	11	11
SW-846 8260	71-43-2	Benzene	MS	76.72	231.9	%REC	11	11
SW-846 8260	108-86-1	Bromobenzene	MS	73.92	233.4	%REC	11	11
SW-846 8260	74-97-5	Bromochloromethane	MS	77.05	257.9	%REC	11	11
SW-846 8260	75-27-4	Bromodichloromethane	MS	75.43	236.5	%REC	11	11
SW-846 8260	75-25-2	Bromoform	MS	75.39	266.3	%REC	11	11
SW-846 8260	74-83-9	Bromomethane	MS	68.27	277.4	%REC	11	11
SW-846 8260	75-15-0	Carbon Disulfide	MS	64.46	154.4	%REC	11	11
SW-846 8260	56-23-5	Carbon Tetrachloride	MS	77	215.8	%REC	11	11
SW-846 8260	108-90-7	Chlorobenzene	MS	74.85	225.5	%REC	11	11
SW-846 8260	3114-55-4	Chlorobenzene-d5	MS	100	100	%REC	1	1
SW-846 8260	75-00-3	Chloroethane	MS	66.53	196	%REC	11	11
SW-846 8260	67-66-3	Chloroform	MS	77.38	233.5	%REC	11	11
SW-846 8260	74-87-3	Chloromethane	MS	61	199.7	%REC	11	11
SW-846 8260	156-59-2	cis-1,2-Dichloroethene	MS	75.49	220.9	%REC	11	11
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	MS	80.77	251.5	%REC	11	11
SW-846 8260	124-48-1	Dibromochloromethane	MS	75.25	251.1	%REC	11	11
SW-846 8260	74-95-3	Dibromomethane	MS	77.38	247.9	%REC	11	11
SW-846 8260	75-71-8	Dichlorodifluoromethane	MS	20.17	125.4	%REC	11	11
SW-846 8260	100-41-4	Ethylbenzene	MS	75.49	215.7	%REC	11	11
SW-846 8260	462-06-6	Fluorobenzene	MS	100	100	%REC	1	1
SW-846 8260	87-68-3	Hexachlorobutadiene	MS	57	188.7	%REC	11	11
SW-846 8260	98-82-8	Isopropylbenzene	MS	72.69	200.3	%REC	11	11
SW-846 8260	541-73-1	m-Dichlorobenzene	MS	67.41	220.3	%REC	11	11
SW-846 8260	75-09-2	Methylene chloride	MS	74	228.5	%REC	11	11
SW-846 8260	91-20-3	Naphthalene	MS	60.56	209.2	%REC	11	11
SW-846 8260	104-51-8	n-Butylbenzene	MS	65	208	%REC	11	11
SW-846 8260	103-65-1	n-Propylbenzene	MS	76	214.7	%REC	11	11
SW-846 8260	135-98-8	sec-Butylbenzene	MS	74	212.3	%REC	11	11
SW-846 8260	100-42-5	Styrene	MS	74.84	224.7	%REC	11	11
SW-846 8260	98-06-6	tert-Butylbenzene	MS	74.64	215.8	%REC	11	11
SW-846 8260	127-18-4	Tetrachloroethene	MS	77.77	218.6	%REC	11	11
SW-846 8260	108-88-3	Toluene	MS	73	225.2	%REC	11	11
SW-846 8260	2037-26-5	Toluene-D8	MS	77.72	94.43	%REC	7	7
SW-846 8260	156-60-5	trans-1,2-Dichloroethene	MS	74.54	191	%REC	11	11
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	MS	75.36	237.5	%REC	11	11
SW-846 8260	79-01-6	Trichloroethene	MS	81	225.9	%REC	11	11
SW-846 8260	75-69-4	Trichlorofluoromethane	MS	68.88	204.2	%REC	11	11

Test Method Name	CAS	Analyte	Result Type	Minimum	Maximum	Unit	No. of Lab Samples	No. of Lab Batches
SW-846 8260	75-01-4	Vinyl chloride	MS	53.76	176	%REC	11	11
SW-846 8260	1330-20-7	Xylene	MS	24.58	100.1	%REC	11	11
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	MS	48	75	%REC	21	21
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	MS	50	78	%REC	21	21
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	MS	8.6	76	%REC	21	21
SW-846 8270	120-83-2	2,4-Dichlorophenol	MS	50	75	%REC	21	21
SW-846 8270	105-67-9	2,4-Dimethylphenol	MS	54	78	%REC	21	21
SW-846 8270	51-28-5	2,4-Dinitrophenol	MS	0	64	%REC	21	21
SW-846 8270	121-14-2	2,4-Dinitrotoluene	MS	48	81	%REC	21	21
SW-846 8270	606-20-2	2,6-Dinitrotoluene	MS	50	78	%REC	21	21
SW-846 8270	91-58-7	2-Chloronaphthalene	MS	49	74	%REC	21	21
SW-846 8270	95-57-8	2-Chlorophenol	MS	48	78	%REC	21	21
SW-846 8270	91-57-6	2-Methylnaphthalene	MS	50	72	%REC	21	21
SW-846 8270	95-48-7	2-Methylphenol	MS	47	77	%REC	21	21
SW-846 8270	88-74-4	2-Nitroaniline	MS	50	78	%REC	21	21
SW-846 8270	91-94-1	3,3-Dichlorobenzidine	MS	17	64	%REC	21	21
SW-846 8270	99-09-2	3-Nitroaniline	MS	40	72	%REC	21	21
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	MS	0	68	%REC	21	21
SW-846 8270	101-55-3	4-Bromophenyl Phenyl Ether	MS	50	77	%REC	21	21
SW-846 8270	59-50-7	4-Chloro-3-Methylphenol	MS	0	80	%REC	21	21
SW-846 8270	106-47-8	4-Chloroaniline	MS	20	65	%REC	21	21
SW-846 8270	7005-72-3	4-Chlorophenyl-Phenyl Ether	MS	49	73	%REC	21	21
SW-846 8270	106-44-5	4-Methylphenol	MS	44	76	%REC	21	21
SW-846 8270	100-02-7	4-Nitrophenol	MS	0	92	%REC	21	21
SW-846 8270	83-32-9	Acenaphthene	MS	49	73	%REC	21	21
SW-846 8270	208-96-8	Acenaphthylene	MS	50	73	%REC	21	21
SW-846 8270	120-12-7	Anthracene	MS	43	78	%REC	21	21
SW-846 8270	56-55-3	Benzo(a)anthracene	MS	16	75	%REC	21	21
SW-846 8270	50-32-8	Benzo(a)pyrene	MS	26	77	%REC	21	21
SW-846 8270	205-99-2	Benzo(b)fluoranthene	MS	18	81	%REC	21	21
SW-846 8270	191-24-2	Benzo(g,h,i)perylene	MS	31	80	%REC	21	21
SW-846 8270	207-08-9	Benzo(k)fluoranthene	MS	20	81	%REC	21	21
SW-846 8270	65-85-0	Benzoic Acid	MS	0	62	%REC	21	21
SW-846 8270	100-51-6	Benzyl Alcohol	MS	0	83	%REC	21	21
SW-846 8270	111-91-1	bis(2-Chloroethoxy) Methane	MS	53	73	%REC	21	21
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	MS	43	76	%REC	21	21
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	MS	43	82	%REC	21	21
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	MS	55	367	%REC	21	21
SW-846 8270	85-68-7	Butylbenzylphthalate	MS	56	82	%REC	21	21
SW-846 8270	218-01-9	Chrysene	MS	1.4	81	%REC	21	21
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	MS	40	90	%REC	21	21
SW-846 8270	132-64-9	Dibenzofuran	MS	50	75	%REC	21	21

Test Method Name	CAS	Analyte	Result Type	Minimum	Maximum	Unit	No. of Lab Samples	No. of Lab Batches
SW-846 8270	84-66-2	Diethylphthalate	MS	53	78	%REC	21	21
SW-846 8270	131-11-3	Dimethylphthalate	MS	51	74	%REC	21	21
SW-846 8270	84-74-2	Di-n-butylphthalate	MS	45	78	%REC	21	21
SW-846 8270	117-84-0	Di-n-octylphthalate	MS	52	266	%REC	21	21
SW-846 8270	206-44-0	Fluoranthene	MS	0	77	%REC	21	21
SW-846 8270	86-73-7	Fluorene	MS	48	75	%REC	21	21
SW-846 8270	118-74-1	Hexachlorobenzene	MS	44	77	%REC	21	21
SW-846 8270	87-68-3	Hexachlorobutadiene	MS	46	80	%REC	21	21
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	MS	0	83	%REC	21	21
SW-846 8270	67-72-1	Hexachloroethane	MS	45	75	%REC	21	21
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	MS	35	81	%REC	21	21
SW-846 8270	78-59-1	Isophorone	MS	71	96	%REC	21	21
SW-846 8270	541-73-1	m-Dichlorobenzene	MS	46	71	%REC	21	21
SW-846 8270	91-20-3	Naphthalene	MS	51	72	%REC	21	21
SW-846 8270	98-95-3	Nitrobenzene	MS	45	77	%REC	21	21
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	MS	57	86	%REC	21	21
SW-846 8270	621-64-7	n-Nitrosodipropylamine	MS	45	76	%REC	21	21
SW-846 8270	88-75-5	o-Nitrophenol	MS	45	80	%REC	21	21
SW-846 8270	87-86-5	Pentachlorophenol	MS	0	64	%REC	21	21
SW-846 8270	85-01-8	Phenanthrene	MS	0	77	%REC	21	21
SW-846 8270	108-95-2	Phenol	MS	49	76	%REC	21	21
SW-846 8270	100-01-6	p-Nitroaniline	MS	46	75	%REC	21	21
SW-846 8270	129-00-0	Pyrene	MS	0	79	%REC	21	21
SW-846 8270	110-86-1	Pyridine	MS	0	68	%REC	21	21

6.2.2 Precision

Matrix Spike Duplicate Evaluation

Laboratory precision is measured through use of MSD. Adequate frequency of MSD measurements is indicated by at least one MSD in each laboratory batch. Table 11 indicates that MSD frequencies were adequate. Ideally, repeatability of matrix spike recoveries should have a relative percent difference (RPD) of 35% or less. However, RPDs exceeding 35% do not affect project decisions because all related real sample results (Table 13) were repeatable well below ALs, except results for lead. Repeatability of lead at concentrations near the ecological AL is discussed in the next section.

Table 11
Matrix Spike Duplicate Evaluation

Test Method	CAS No.	Analyte	No. of Sample Pairs	No. of Lab Batches	RPD Max. (%)
SW-846 6010	7429-90-5	Aluminum	3	3	131.94
SW-846 6010	7440-36-0	Antimony	3	3	12.99
SW-846 6010	7440-38-2	Arsenic	3	3	5.29
SW-846 6010	7440-39-3	Barium	3	3	15.38
SW-846 6010	7440-41-7	Beryllium	3	3	7.33
SW-846 6010	7440-42-8	Boron	3	3	3.28
SW-846 6010	7440-43-9	Cadmium	3	3	3.51
SW-846 6010	7440-70-2	Calcium	3	3	9.90
SW-846 6010	18540-29-9	Chromium VI	3	3	18.05
SW-846 6010	7440-48-4	Cobalt	3	3	5.35
SW-846 6010	7440-50-8	Copper	3	3	3.05
SW-846 6010	7439-89-6	Iron	2	2	109.83
SW-846 6010	7439-92-1	Lead	3	3	94.63
SW-846 6010	7439-93-2	Lithium	3	3	9.05
SW-846 6010	7439-95-4	Magnesium	3	3	10.84
SW-846 6010	7439-96-5	Manganese	3	3	63.25
SW-846 6010	7439-97-6	Mercury	3	3	5.46
SW-846 6010	7439-98-7	Molybdenum	3	3	1.23
SW-846 6010	7440-02-0	Nickel	3	3	12.84
SW-846 6010	7440-09-7	Potassium	3	3	17.51
SW-846 6010	7782-49-2	Selenium	3	3	5.18
SW-846 6010	7631-86-9	Silica As SiO ₂ , Dissolved	3	3	15.38
SW-846 6010	7440-22-4	Silver	3	3	5.03
SW-846 6010	7440-23-5	Sodium	3	3	6.90
SW-846 6010	7440-24-6	Strontium	3	3	3.17
SW-846 6010	7440-28-0	Thallium	3	3	4.40
SW-846 6010	7440-31-5	Tin	3	3	2.22
SW-846 6010	7440-32-6	Titanium	3	3	71.74
SW-846 6010	11-09-6	Uranium	3	3	4.26
SW-846 6010	7440-62-2	Vanadium	3	3	18.35
SW-846 6010	7440-66-6	Zinc	3	3	14.68
SW-846 8260	630-20-6	1,1,1,2-Tetrachloroethane	11	11	7.26
SW-846 8260	71-55-6	1,1,1-Trichloroethane	11	11	10.16
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	11	11	34.17
SW-846 8260	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	7	7	10.65
SW-846 8260	79-00-5	1,1,2-Trichloroethane	11	11	19.50
SW-846 8260	75-34-3	1,1-Dichloroethane	11	11	10.53
SW-846 8260	75-35-4	1,1-Dichloroethene	11	11	11.50
SW-846 8260	563-58-6	1,1-Dichloropropene	11	11	9.96

Test Method	CAS No.	Analyte	No. of Sample Pairs	No. of Lab Batches	RPD Max. (%)
SW-846 8260	87-61-6	1,2,3-Trichlorobenzene	11	11	22.90
SW-846 8260	96-18-4	1,2,3-Trichloropropane	11	11	30.77
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	11	11	14.97
SW-846 8260	95-63-6	1,2,4-Trimethylbenzene	11	11	10.18
SW-846 8260	96-12-8	1,2-Dibromo-3-Chloropropane	11	11	30.61
SW-846 8260	106-93-4	1,2-Dibromoethane	11	11	23.40
SW-846 8260	95-50-1	1,2-Dichlorobenzene	11	11	12.44
SW-846 8260	107-06-2	1,2-Dichloroethane	11	11	18.69
SW-846 8260	17060-07-0	1,2-Dichloroethane-D4	7	7	14.59
SW-846 8260	78-87-5	1,2-Dichloropropane	11	11	10.09
SW-846 8260	108-67-8	1,3,5-Trimethylbenzene	11	11	8.71
SW-846 8260	142-28-9	1,3-Dichloropropane	11	11	18.58
SW-846 8260	106-46-7	1,4-Dichlorobenzene	11	11	10.06
SW-846 8260	3855-82-1	1,4-Dichlorobenzene-d4	1	1	0.00
SW-846 8260	594-20-7	2,2-Dichloropropane	11	11	10.59
SW-846 8260	78-93-3	2-Butanone	11	11	27.65
SW-846 8260	95-49-8	2-Chlorotoluene	11	11	8.36
SW-846 8260	591-78-6	2-Hexanone	11	11	124.37
SW-846 8260	460-00-4	4-Bromofluorobenzene	7	7	8.72
SW-846 8260	106-43-4	4-Chlorotoluene	11	11	9.51
SW-846 8260	99-87-6	4-Isopropyltoluene	11	11	9.46
SW-846 8260	108-10-1	4-Methyl-2-pentanone	11	11	15.60
SW-846 8260	67-64-1	Acetone	11	11	35.97
SW-846 8260	71-43-2	Benzene	11	11	11.20
SW-846 8260	108-86-1	Bromobenzene	11	11	9.37
SW-846 8260	74-97-5	Bromochloromethane	11	11	17.22
SW-846 8260	75-27-4	Bromodichloromethane	11	11	8.50
SW-846 8260	75-25-2	Bromoform	11	11	23.08
SW-846 8260	74-83-9	Bromomethane	11	11	25.62
SW-846 8260	75-15-0	Carbon Disulfide	11	11	7.94
SW-846 8260	56-23-5	Carbon Tetrachloride	11	11	10.67
SW-846 8260	108-90-7	Chlorobenzene	11	11	9.35
SW-846 8260	3114-55-4	Chlorobenzene-d5	1	1	0.00
SW-846 8260	75-00-3	Chloroethane	11	11	11.84
SW-846 8260	67-66-3	Chloroform	11	11	8.94
SW-846 8260	74-87-3	Chloromethane	11	11	21.40
SW-846 8260	156-59-2	cis-1,2-Dichloroethene	11	11	11.09
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	11	11	9.10
SW-846 8260	124-48-1	Dibromochloromethane	11	11	15.17
SW-846 8260	74-95-3	Dibromomethane	11	11	13.06
SW-846 8260	75-71-8	Dichlorodifluoromethane	11	11	21.09
SW-846 8260	100-41-4	Ethylbenzene	11	11	9.48

Test Method	CAS No.	Analyte	No. of Sample Pairs	No. of Lab Batches	RPD Max. (%)
SW-846 8260	462-06-6	Fluorobenzene	1	1	0.00
SW-846 8260	87-68-3	Hexachlorobutadiene	11	11	17.60
SW-846 8260	98-82-8	Isopropylbenzene	11	11	8.93
SW-846 8260	541-73-1	m-Dichlorobenzene	11	11	10.22
SW-846 8260	75-09-2	Methylene chloride	11	11	10.89
SW-846 8260	91-20-3	Naphthalene	11	11	20.68
SW-846 8260	104-51-8	n-Butylbenzene	11	11	13.38
SW-846 8260	103-65-1	n-Propylbenzene	11	11	8.97
SW-846 8260	135-98-8	sec-Butylbenzene	11	11	9.06
SW-846 8260	100-42-5	Styrene	11	11	8.40
SW-846 8260	98-06-6	tert-Butylbenzene	11	11	8.81
SW-846 8260	127-18-4	Tetrachloroethene	11	11	8.92
SW-846 8260	108-88-3	Toluene	11	11	8.14
SW-846 8260	2037-26-5	Toluene-D8	7	7	9.33
SW-846 8260	156-60-5	trans-1,2-Dichloroethene	11	11	10.08
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	11	11	11.53
SW-846 8260	79-01-6	Trichloroethene	11	11	8.82
SW-846 8260	75-69-4	Trichlorofluoromethane	11	11	11.74
SW-846 8260	75-01-4	Vinyl chloride	11	11	16.30
SW-846 8260	1330-20-7	Xylene	11	11	9.47
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	21	21	27.27
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	21	21	35.29
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	21	21	43.68
SW-846 8270	120-83-2	2,4-Dichlorophenol	21	21	33.71
SW-846 8270	105-67-9	2,4-Dimethylphenol	21	21	39.13
SW-846 8270	51-28-5	2,4-Dinitrophenol	20	20	73.17
SW-846 8270	121-14-2	2,4-Dinitrotoluene	21	21	43.68
SW-846 8270	606-20-2	2,6-Dinitrotoluene	21	21	36.36
SW-846 8270	91-58-7	2-Chloronaphthalene	21	21	39.08
SW-846 8270	95-57-8	2-Chlorophenol	21	21	34.04
SW-846 8270	91-57-6	2-Methylnaphthalene	21	21	36.36
SW-846 8270	95-48-7	2-Methylphenol	21	21	35.79
SW-846 8270	88-74-4	2-Nitroaniline	21	21	38.20
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	21	21	40.00
SW-846 8270	99-09-2	3-Nitroaniline	21	21	44.78
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	20	20	56.60
SW-846 8270	101-55-3	4-Bromophenyl Phenyl Ether	21	21	36.36
SW-846 8270	59-50-7	4-Chloro-3-Methylphenol	20	20	36.36
SW-846 8270	106-47-8	4-Chloroaniline	21	21	38.30
SW-846 8270	7005-72-3	4-Chlorophenyl-Phenyl Ether	21	21	39.02
SW-846 8270	106-44-5	4-Methylphenol	21	21	35.05
SW-846 8270	100-02-7	4-Nitrophenol	20	20	48.65

Test Method	CAS No.	Analyte	No. of Sample Pairs	No. of Lab Batches	RPD Max. (%)
SW-846 8270	83-32-9	Acenaphthene	21	21	37.21
SW-846 8270	208-96-8	Acenaphthylene	21	21	41.86
SW-846 8270	120-12-7	Anthracene	21	21	40.91
SW-846 8270	56-55-3	Benzo(a)anthracene	21	21	91.53
SW-846 8270	50-32-8	Benzo(a)pyrene	21	21	44.78
SW-846 8270	205-99-2	Benzo(b)fluoranthene	21	21	56.00
SW-846 8270	191-24-2	Benzo(g,h,i)perylene	21	21	46.58
SW-846 8270	207-08-9	Benzo(k)fluoranthene	21	21	62.07
SW-846 8270	65-85-0	Benzoic Acid	19	19	82.35
SW-846 8270	100-51-6	Benzyl Alcohol	20	20	32.00
SW-846 8270	111-91-1	bis(2-Chloroethoxy) Methane	21	21	35.56
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	21	21	35.79
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	21	21	33.33
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	21	21	44.21
SW-846 8270	85-68-7	Butylbenzylphthalate	21	21	40.00
SW-846 8270	218-01-9	Chrysene	21	21	178.79
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	21	21	41.03
SW-846 8270	132-64-9	Dibenzofuran	21	21	38.10
SW-846 8270	84-66-2	Diethylphthalate	21	21	38.20
SW-846 8270	131-11-3	Dimethylphthalate	21	21	40.00
SW-846 8270	84-74-2	Di-n-butylphthalate	21	21	36.56
SW-846 8270	117-84-0	di-n-octylphthalate	21	21	38.30
SW-846 8270	206-44-0	Fluoranthene	20	20	50.00
SW-846 8270	86-73-7	Fluorene	21	21	44.71
SW-846 8270	118-74-1	Hexachlorobenzene	21	21	36.14
SW-846 8270	87-68-3	Hexachlorobutadiene	21	21	34.48
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	20	20	43.14
SW-846 8270	67-72-1	Hexachloroethane	21	21	34.04
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	21	21	41.03
SW-846 8270	78-59-1	Isophorone	21	21	34.15
SW-846 8270	541-73-1	m-Dichlorobenzene	21	21	29.21
SW-846 8270	91-20-3	Naphthalene	21	21	29.21
SW-846 8270	98-95-3	Nitrobenzene	21	21	30.93
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	21	21	37.50
SW-846 8270	621-64-7	n-Nitrosodipropylamine	21	21	33.66
SW-846 8270	88-75-5	o-Nitrophenol	21	21	30.43
SW-846 8270	87-86-5	Pentachlorophenol	20	20	96.00
SW-846 8270	85-01-8	Phenanthrene	20	20	36.14
SW-846 8270	108-95-2	Phenol	21	21	37.50
SW-846 8270	100-01-6	p-Nitroaniline	21	21	39.02
SW-846 8270	129-00-0	Pyrene	20	20	55.42
SW-846 8270	110-86-1	Pyridine	20	20	18.67

Field Duplicate Evaluation

Field duplicate results reflect sampling precision, or overall repeatability of the sampling process. The frequency of field duplicate collection should exceed 1 field duplicate per 20 real samples, or 5 percent. Table 12 indicates that sampling frequencies were adequate.

Table 12
Field Duplicate Sample Frequency

Test Method Name	Sample QC Code	Count of Location Code	% Duplicate Sample
GAMMA	REAL	1	0
GAMMA SPECTROSCOPY	REAL	38	13
GAMMA SPECTROSCOPY	DUP	5	
SW-846 8260B	REAL	1	0
SW-846 6200	REAL	39	18
SW-846 6200	DUP	7	
SW-846 8260	REAL	39	13
SW-846 8260	DUP	5	
SW-846 8270	REAL	39	18
SW-846 8270	DUP	7	

A common metric for evaluating precision is the RPD value; RPD values are given in Table 13. Ideally, RPDs of less than 35 percent (in soil) indicate satisfactory precision. Values exceeding 35 percent only affect project decisions if the imprecision is great enough to cause contradictory decisions relative to the COC (one sample indicates clean soil whereas the QC partner does not). If any contaminant concentration exceeded an AL (e.g., lead), and also exceeded a 35% RPD value, then all associated results were reviewed to determine if the magnitude of imprecision could impact decisions (could some of those sample concentrations measured below action levels possibly exceed action levels?)

While several lead sample pairs were repeatable at concentrations below the ecological AL of 25.6 mg/kg, the highest RPD values for sample results near the AL was 48% (a percent difference of 39%). Given this range of sampling precision, all real samples exceeding roughly 18 mg/kg could potentially exceed the ecological AL because of variability in the sampling process. However, there were only two real results above the background mean, and these exceeded the ecological AL (i.e., there were no results between 25.6 and 18 mg/kg; refer to Table 3.)

Table 13
RPD Evaluation

Analyte	Max of RPD %
1,1,1,2-Tetrachloroethane	126.30
1,1,1-Trichloroethane	133.23
1,1,2,2-Tetrachloroethane	140.07
1,1,2-Trichloro-1,2,2-Trifluor	0.00
1,1,2-Trichloro-1,2,2-Trifluoroethane	4.09
1,1,2-Trichloroethane	141.99
1,1-Dichloroethane	138.98
1,1-Dichloroethene	114.87
1,1-Dichloropropene	125.30
1,2,3-Trichlorobenzene	154.57
1,2,3-Trichloropropane	136.35
1,2,4-Trichlorobenzene	199.51
1,2,4-Trimethylbenzene	137.26
1,2-Dibromo-3-Chloropropane	100.88
1,2-Dibromoethane	147.77
1,2-Dichlorobenzene	152.80
1,2-Dichloroethane	138.28
1,2-Dichloropropane	145.84
1,3,5-Trimethylbenzene	139.58
1,3-Dichloropropane	161.65
1,4-Dichlorobenzene	132.71
1-Hexanol, 2-Ethyl-	4.03
2,2-Dichloropropane	137.47
2,4,5-Trichlorophenol	7.50
2,4,6-Trichlorophenol	7.50
2,4-Dichlorophenol	7.50
2,4-Dimethylphenol	7.50
2,4-Dinitrophenol	5.26
2,4-Dinitrotoluene	7.50
2,6-Dinitrotoluene	7.50
2-Butanone	74.03
2-Chloronaphthalene	7.50
2-Chlorophenol	7.50
2-Chlorotoluene	110.53
2-Hexanone	92.36
2-Methylnaphthalene	7.50
2-Methylphenol	7.50
2-Nitroaniline	5.26
3,3'-Dichlorobenzidine	7.41
3-Nitroaniline	5.26

Analyte	Max of RPD %
4,6-Dinitro-2-methylphenol	5.26
4-Bromophenyl Phenyl Ether	7.50
4-Chloro-3-Methylphenol	7.41
4-Chloroaniline	7.41
4-Chlorophenyl-Phenyl Ether	7.50
4-Chlorotoluene	142.21
4-Isopropyltoluene	133.75
4-Methyl-2-pentanone	105.06
4-Methylphenol	7.50
4-Nitrophenol	5.26
Ac-228	44.88
Acenaphthene	5.26
Acenaphthylene	5.26
Acetic Acid, 2-Ethylhexyl Este	2.67
Acetone	42.15
Americium-241	100.00
Anthracene	5.26
Antimony	0.00
Arsenic	29.51
Barium	31.55
Benzene	148.17
Benzo(a)anthracene	178.13
Benzo(a)pyrene	78.61
Benzo(b)fluoranthene	157.81
Benzo(g,h,i)perylene	68.29
Benzo(k)fluoranthene	159.25
Benzoic Acid	5.26
Benzyl Alcohol	7.41
Bi-212	70.31
Bi-214	48.45
bis(2-Chloroethoxy) Methane	7.50
bis(2-Chloroethyl)ether	7.50
bis(2-Chloroisopropyl)ether	7.50
bis(2-Ethylhexyl)phthalate	7.50
Bromobenzene	133.54
Bromochloromethane	129.96
Bromodichloromethane	155.59
Bromoform	132.60
Bromomethane	109.85
Butylbenzylphthalate	7.50
Cadmium	0.00
Calcium	67.94
Carbon Disulfide	66.03

Analyte	Max of RPD %
Carbon Tetrachloride	129.50
Chlorobenzene	138.93
Chloroethane	34.07
Chloroform	143.99
Chloromethane	118.89
Chromium VI	55.48
Chrysene	176.42
cis-1,2-Dichloroethene	90.09
cis-1,3-Dichloropropene	145.16
Cobalt	0.00
Copper	85.71
Cs-137	37.48
Dibenz(a,h)anthracene	53.66
Dibenzofuran	7.50
Dibromochloromethane	153.22
Dibromomethane	151.34
Dichlorodifluoromethane	97.21
Diethylphthalate	7.50
Dimethylphthalate	7.50
Di-n-butylphthalate	7.50
Di-n-octylphthalate	7.50
Ethylbenzene	135.12
Fluoranthene	171.58
Fluorene	7.50
Hexachlorobenzene	7.50
Hexachlorobutadiene	199.38
Hexachlorocyclopentadiene	7.50
Hexachloroethane	7.50
Indeno(1,2,3-cd)pyrene	49.06
Iron	10.12
Isophorone	7.50
Isopropylbenzene	123.76
K-40	43.05
Lead	68.43
Manganese	46.85
m-Dichlorobenzene	199.49
Methylene chloride	25.90
Molybdenum	0.00
Naphthalene	199.59
n-Butylbenzene	136.78
Nickel	9.97
Nitrobenzene	7.50
n-Nitrosodiphenylamine	7.50

Analyte	Max of RPD %
n-Nitrosodipropylamine	7.50
n-Propylbenzene	130.84
o-Nitrophenol	7.50
Pa-234	32.77
PA-234M	31.53
Pb-212	33.33
Pb-214	61.27
Pentachlorophenol	5.26
Phenanthrene	165.10
Phenol	7.50
p-Nitroaniline	5.26
Po-210	108.17
Potassium	8.37
Pyrene	157.51
Pyridine	7.50
Ra-226	71.64
sec-Butylbenzene	133.86
Selenium	0.00
Silver	0.00
Strontium	35.36
Styrene	136.08
tert-Butylbenzene	131.41
Tetrachloroethene	125.00
Th-230	27.76
Th-231	117.61
Tin	33.48
Tl-208	47.68
Toluene	94.44
trans-1,2-Dichloroethene	67.19
trans-1,3-Dichloropropene	141.94
Trichloroethene	157.02
Trichlorofluoromethane	123.42
Uranium-235	79.69
Uranium-238	42.71
Vanadium	46.33
Vinyl chloride	60.73
Xylene	91.74
Zinc	31.57

Completeness

Based on original project DQOs, a minimum of 25 percent of ER Program analytical results must be formally verified and validated. Of that percentage, no more than 10 percent of the results may be rejected, which ensures that analytical laboratory practices are consistent with quality requirements. Table 14 shows the number and percentage of validated records (codes without “1”), verified records (codes with “1”), and rejected records for each analyte group. The percentage of rejected records was acceptable. Spot checks of Gamma Spectroscopy hardcopy records indicate that more than 25 percent of the hardcopy data packages are undergoing validation, with acceptable rejection rates; however, the validation flags have not yet been uploaded to SWD. Because the frequency of validation for the ER Program is adequate, the results are considered adequate for use in project decisions.

6.2.3 Sensitivity

Reporting limits, in units of ug/kg for organics, mg/kg for metals, and pCi/g for radionuclides, were compared with proposed RFCA WRW and Ecological Receptor ALs. Adequate sensitivities of analytical methods were attained for all COCs that affect project decisions. “Adequate” sensitivity is defined as a reporting limit less than an analyte’s associated AL, typically less than one-half the AL.

6.3 Summary of Data Quality

Data quality is acceptable for project decisions based on the V&V criteria cited and with the qualifications given.

Table 14
Validation and Verification Summary

Validation Qualifier Code	Total Records	Radionuclides	Metals	Organics
No V&V	3616	747	495	2372
I	34	0	34	0
J	21	0	17	4
J1	35	0	34	1
R	2	0	0	2
U1	1	0	0	1
V	1361	8	169	1184
V1	2795	0	337	2458
JB	3	0	0	3
JB1	4	0	0	4
UJ	41	0	5	36
UJ1	86	0	6	80
Total	7999	757	1097	6145
Total Validated	1441	8	208	1225
% Validated	18%	1.1%	19%	20%
Total Verified	2954	0	411	2543
% Verified	37%	0%	37.5%	41%
% Rejected	0.03%	0.00%	0.00%	0.06%

Key:

- 1, V1 - Verified
- J, J1 - Estimated
- U – Non-Detect
- V - Validated
- R - Rejected
- B - also in blank (organics); between RL & MDL (metals)

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7.0 REFERENCES

- DOE, 1992-2002, Historical Release Reports for the Rocky Flats Plant, Rocky Flats Plant, Golden, Colorado, June.
- DOE, 1999, DOE Order 414.1A, Quality Assurance.
- DOE, 2001, Industrial Area Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, June.
- DOE, 2002, Industrial Area Sampling and Analysis Plan Addendum #IA-03-01, Rocky Flats Environmental Technology Site, Golden, Colorado, September.
- DOE, CDPHE and EPA, 2003, Rocky Flats Cleanup Agreement, Rocky Flats Environmental Technology Site, Golden, Colorado, June.
- DynCorp, 2002, Passive Reactive Barriers and Plume Locations at Rocky Flats Environmental Technology Site, Rocky Flats Environmental Technology Site, Golden, Colorado, May.
- EPA, 1994a, QA/G-4, Guidance for the Data Quality Objective Process.
- EPA, 1994b, 540/R-94/012, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review.
- EPA, 1994c, 540/R-94/013, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.
- EPA, 1998, QA/G-9, Guidance for the Data Quality Assessment Process; Practical Methods for Data Analysis.
- Kaiser-Hill Company, 2002a, General Guidelines for Data Verification and Validation, DA-GR01-v1.
- Kaiser-Hill Company, 2002b, V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v1.
- Kaiser-Hill Company, 2002c, V&V Guidelines for Volatile Organics, DA-SS01-v1.
- Kaiser-Hill Company, 2002d, V&V Guidelines for Semivolatile Organics, DA-SS02-v1.
- Kaiser-Hill Company, 2002e, V&V Guidelines for Metals, DA-SS05-v1.
- Lockheed-Martin, 1997, Evaluation of Radiochemical Data Usability, ES/ER/MS-5.

ENCLOSURE

**IHSS GROUPS 300-3 AND 300-4 RAW DATA
(Compact Disc)**

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APPENDIX A

CORRESPONDENCE

**ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ENVIRONMENTAL RESTORATION
REGULATORY CONTACT RECORD**

Date/Time: July 21, 2003

Site Contact(s): Norma Castaneda, Russ McCallister, Marla Broussard,
Susan Serreze

Phone: 303-966-4226, 303-966-9692, 303-966-6007, 303-966-2677

Regulatory Contact: CDPHE: Elizabeth Pottorff, Dave Kruchek, Harlen Ainscough
EPA: Gary Kleeman

Phone: 303-692-3429, 303-692-3328, 303-692-3337
303-312-6246

Agency: CDPHE; EPA

Purpose of Contact: Consultative Process Meeting IHSS Groups 300-3 and 300-4

Discussion

A meeting was held on July 14, 2003, to discuss the IHSS Groups 300-3 and 300-4 characterization data. Based on the preliminary data presented, CDPHE agreed that an accelerated action at the IHSS Groups 300-3 and 300-4 is not warranted.

Distribution:

H. Ainscough, CDPHE
S. Gunderson, CDPHE
D. Kruchek, CDPHE
E. Pottorff, CDPHE
C. Spreng, CDPHE
T. Rehder, USEPA
G. Kleeman, USEPA
N. Castenada, RFFO
R. DiSalvo, RFFO
R. McCallister, RFFO
S. Surovchak, RFFO
R. Tyler, RFFO

L. Brooks, K-H ESS
M. Broussard, K-H RISS
L. Butler, K-H RISS
R. Davis, K-H RISS
C. Deck, K-H Legal
D. Mayo, K-H RISS
J. Mead, K-H ESS
S. Nesta, K-H RISS
L. Norland, K-H RISS
K. North, K-H ESS
A. Primrose, K-H RISS
D. Shelton, K-H ESS
K. Wiemelt, K-H RISS

K. Griggs, K-H Team
G. Kelly, K-H Team
S. Luker, K-H Team
D. Radtke, K-H Team
D. Reeder, K-H Team
M. Ruthven, K-H Team
S. Serreze, K-H Team
T. Spence, K-H Team
D. Strand, K-H Team
E. Woodland, K-H Team
Administrative Record
ER Meeting Minutes

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: May 15, 2003/ 12:05 p.m.

Site Contact(s): David Strand, RISS/ER and *Mike Bemski, RISS/ER*
Phone: 303-966-6422 303-966-4090

Regulatory Contact: David Kruchek
Phone: 303-692-3328

Agency: Colorado Department of Public Health and Environment

Purpose of Contact: To discuss sampling rationale for 11 biased sample locations, located outside of the Building 371/374 complex, in IA Groups 300-3 & 300-4.

Discussion

Reason for discussion was that discrepancies exist between actual locations of targeted utilities to sample and what IASAP Addendum #IA-03-01 specifies. The primary issue was that the foundation drain system surrounding the complex is actually much deeper than originally thought during the planning phase (15 to 30 feet below ground surface) and that many of the other utilities shown on Figure 3 do not, or no longer, exist. The discussion of the sampling rationale resulted in the following decisions.

Only four of the eleven (outside) biased sample locations will be collected. The locations to be collected are now limited to:

- BW45-003 & -004 – The purpose of these two sample locations is not to target the foundation drains, but to sample in an area where a VOC hit from a previous sampling effort was suspected to exist. The exact location and interval(s) collected in the previous sampling event will be investigated and duplicated, if possible. If this information is not available, the A, B, and C intervals (3 intervals collected continuously to 4.5 feet deep) will be collected instead, at each of these locations.
- BZ45-005 – This location will target the NPWL lines running out of the south side of 374 as specified by the IASAP Addendum, #03-01. The actual depth of the lines will be determined prior to sampling and the samples collected will bound this interval.
- *BX44-000 – This location was to target the storm drain system entering the ground in this area. In association with the Site Excavation Specialists, it has been determined that the drain pipe is 20 feet below ground surface. As the sampling program would not characterize in the vicinity of the pipe, and due to its depth, this location has been deleted.*

The remaining seven locations listed in the SAP Addendum will not be collected due to one or more of the following reasons:

- The foundation drain is too deep below ground surface to be of interest or accurately sampled.
- Other utilities shown in Figure 3 that were originally targeted in the IASAP Addendum are not known to exist.
- Existing historical data in the sample areas do not warrant further sampling.

Contact Record Prepared By: David Strand on May 7, 2003 and *Mike Bemski on May 14, 2003 (in italics).*

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Required Distribution:

S. Bell, RFFO
L. Brooks, K-H ESS
L. Butler, K-H RISS
C. Deck, K-H Legal
R. DiSalvo, RFFO
S. Gunderson, CDPHE
J. Legare, RFFO

D. Mayo, K-H RISS
J. Mead, K-H ESS
S. Nesta, K-H RISS
K. North, K-H ESS
T. Rehder, USEPA
D. Shelton, K-H
C. Spreng, CDPHE

Additional Distribution
(choose names as applicable):

M. Broussard, K-H RISS
J. Hindman, CDPHE
G. Kleeman, USEPA
D. Kruchek, CDPHE
L. Norland, K-H RISS
A. Primrose, K-H RISS
E. Pottorff, CDPHE
S. Tower, DOE

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: March 12, 2003/ 13:00

Site Contact(s): David Strand
Phone: 303-966-6422

Regulatory Contact: David Kruchek
Phone: 303-692-3328

Agency: Colorado Department of Public Health and Environment

Purpose of Contact: UBC 371/374 Soil Conditions Under Building (IA Groups 300-3 & 300-4)

Discussion

After coring through the floor slabs of Buildings 371 and 374 at several sample locations, it was discovered by the field teams that a fine-grained, well-sorted layer of construction sand exists uniformly beneath the two buildings. The sand is (in most cases) without any clay matrix, is partially saturated, and of undetermined depth(s). The field team attempted to hand-auger through the sand to contact any underlying soil, but was unsuccessful. The sand was augered through to a depth of approximately 36-inches before refusal. Voids between the slab bottom and top of underlying sand also exist in most locations.

On 3/12/03, I spoke with David Kruchek regarding this issue. He and I agreed that the first 6-inches of sand or soil would be collected beneath the slab (as directed by IASAP Addendum #IA-03-01), unless very coarse sand or gravel is encountered. In this instance, all efforts would be made to remove or bypass the gravel layer to access underlying soils for sample collection as has been routinely done in other buildings around the Site as part of UBC characterization.

At the six sample locations already collected at the time of this correspondence, field teams returned to each of those locations and attempted to collect native soil beneath the sand, as described above. These efforts were unsuccessful as the sand layer is greater than 3-feet in thickness at these locations.

Contact Record Prepared By: David Strand

Required Distribution:

S. Bell, RFFO
L. Brooks, K-H ESS
L. Butler, K-H RISS
C. Deck, K-H Legal
R. DiSalvo, RFFO
S. Gunderson, CDPHE
J. Legare, RFFO

D. Mayo, K-H RISS
J. Mead, K-H ESS
S. Nesta, K-H RISS
K. North, K-H ESS
T. Rehder, USEPA
D. Shelton, K-H
C. Spreng, CDPHE

Additional Distribution

(choose names as applicable):

M. Broussard, K-H RISS
J. Hindman, CDPHE
G. Kleeman, USEPA
D. Kruchek, CDPHE
L. Norland, K-H RISS
A. Primrose, K-H RISS
E. Pottorff, CDPHE
S. Tower, DOE

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Figure 1
IHSS Group 300-3 and 300-4
Location Map

EXPLANATION
IHSS Groupings



Standard Map Features

- Buildings and other structures
- Demolished buildings and other structures
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences and other barriers
- Paved roads
- Dirt roads
- Solar Evaporation Ponds (SEPe)
- Industrial Area Operable Unit Boundary



DATA SOURCE BASE FEATURES:
PAEA
Historical Release Report (HRR)
2003/03/03-04/29/03
Sept. 30, 1997
Individual Hazardous Substance Sites (IHSS)
DOE 1997, HRR Report and Subsequent Updates.
Buildings, fences, hydrography, roads and other features were digitized from aerial photographs captured by ES&S NSI, Las Vegas.
Digitized from the orthophotographs, 1995

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

GIS Dept. 303-966-7707
Prepared by:



July 22, 2003

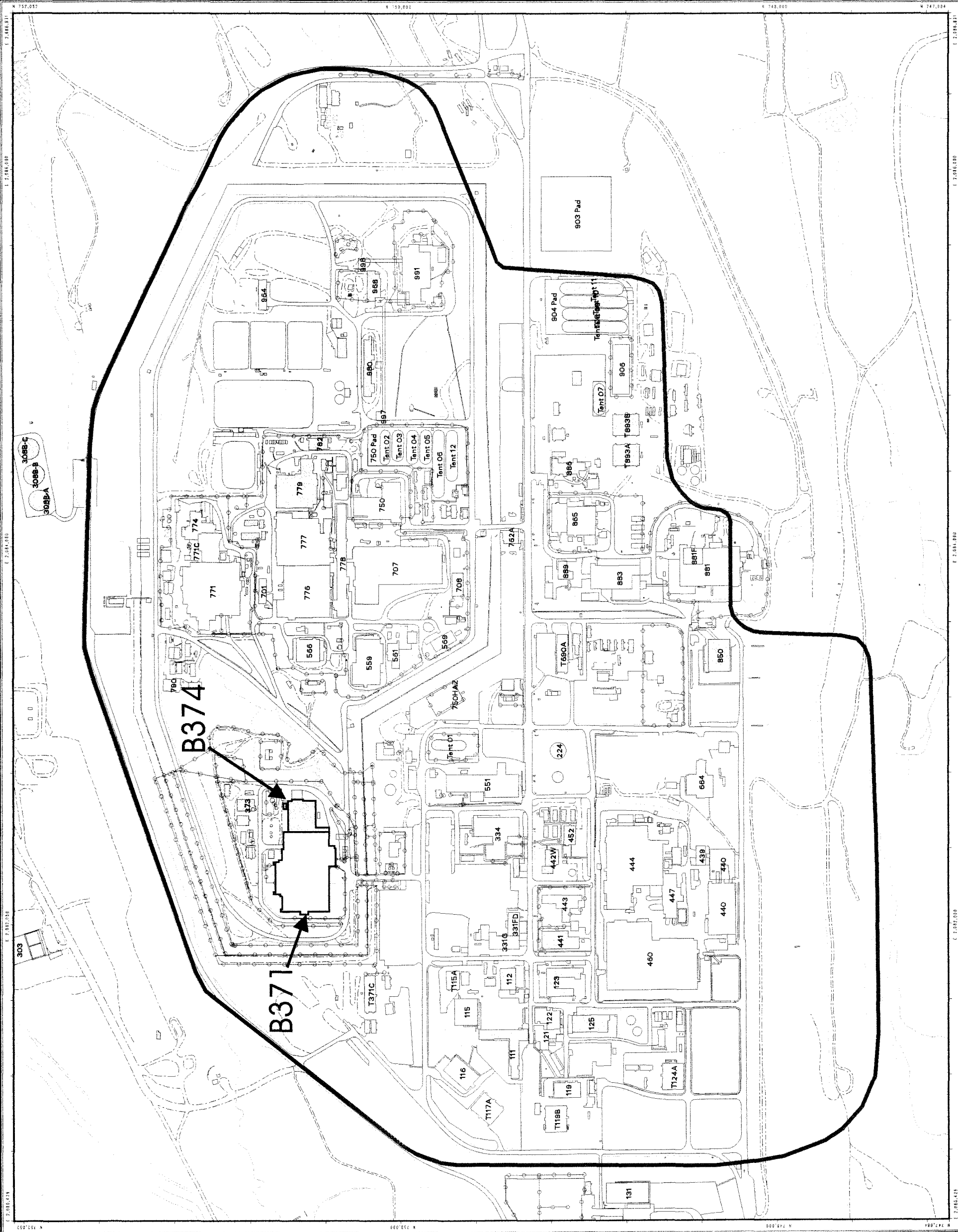


Figure 2
Existing Surface Soil
Sampling Results Greater
Than Background Mean
Plus Two Standard Deviations
or MDLs for
IHSS Groups 300-3 and 300-4

KEY

● Surface Soil Sampling
Locations

UBC

Stream, ditch,
or other drainage

Paved area

Dirt road

Demolished building

Standing building

Fence



50 0 50 100 Feet

Scale = 1:1,250

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:

RADMS

Prepared for:



Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SS810483	COPPER	31.90000	25.00000	18.06	40900.00000	-	mg/Kg
SS810483	MANGANESE	540.00000	15.00000	365.08	3480.00000	-	mg/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SS801093	URANIUM-235	0.25000	0.10000	0.0939	8.00000	1900	pCi/g

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SED06195	ANTIMONY	0.57000	0.45200	N/A	409.00000	-	mg/Kg
SED06195	FLUORIDE	2.92000	2.50000	N/A	61300000.00000	-	mg/Kg
SED06195	IRON	18200.00000	1.35000	18037	307000.00000	-	mg/Kg
SED06195	MANGANESE	20900.00000	1.36000	18037	307000.00000	-	mg/Kg
SED06195	NICKEL	372.00000	0.22600	365.08	3480.00000	-	mg/Kg
SED06195	NICKEL	175.20000	0.1491	14.91	20400.00000	-	mg/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SED06095	2-METHYLNAPHTHALENE	2000.00000	370.00000	N/A	20400000.00000	-	ug/Kg
SED06095	ANTIMONY	0.80000	0.45000	N/A	409.00000	-	mg/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SS801293	COPPER	65.20000	25.00000	18.06	40900.00000	-	mg/Kg
SS801293	ZINC	146.00000	20.00000	73.76	307000.00000	-	mg/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SS801483	PLUTONIUM-239/240	0.01200	0.00800	N/A	50.00000	3800	pCi/g

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SS011593	ZINC	258.00000	20.00000	73.76	307000.00000	-	mg/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SS812193	COPPER	79.90000	25.00000	18.06	40900.00000	-	mg/Kg
SS812193	COPPER	74.30000	23.00000	18.06	40900.00000	-	mg/Kg
SS812193	MANGANESE	434.00000	13.00000	365.08	3480.00000	-	mg/Kg
SS812193	MANGANESE	453.00000	13.00000	365.08	3480.00000	-	mg/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SS812293	COPPER	84.10000	25.00000	18.06	40900.00000	-	mg/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SS812393	COPPER	115.00000	25.00000	18.06	40900.00000	-	mg/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SS812593	COPPER	50.20000	25.00000	18.06	40900.00000	-	mg/Kg
SS812593	IRON	26600.00000	100.00000	18037	307000.00000	-	mg/Kg
SS812593	MANGANESE	664.00000	15.00000	365.08	3480.00000	-	mg/Kg
SS812593	ZINC	85.60000	20.00000	73.76	307000.00000	-	mg/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SED06495	FLUORIDE	5.99000	2.50000	N/A	61300000.00000	-	mg/Kg
SED06495	MANGANESE	431.00000	0.24600	365.08	3480.00000	-	mg/Kg
SED06495	NICKEL	15.10000	2.96000	14.91	20400.00000	-	mg/Kg
SED06495	ZINC	244.00000	0.49500	73.76	307000.00000	-	mg/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SS812493	COPPER	122.00000	25.00000	18.06	40900.00000	-	mg/Kg
SS812493	IRON	18800.00000	100.00000	18037	307000.00000	-	mg/Kg
SS812493	MANGANESE	467.00000	15.00000	365.08	3480.00000	-	mg/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SED08095	COPPER	48.00000	0.66800	18.06	40900.00000	-	mg/Kg
SED08095	FLUORANTHENE	750.00000	2.50000	N/A	27200000.00000	-	ug/Kg
SED08095	FLUORIDE	3.19000	2.50000	N/A	61300000.00000	-	mg/Kg
SED08095	IRON	25500.00000	1.33000	18037	307000.00000	-	mg/Kg
SED08095	MANGANESE	390.00000	1.22200	365.08	3480.00000	-	mg/Kg
SED08095	PYRENE	490.00000	370.00000	N/A	22100000.00000	-	ug/Kg

Location	Analyte	Result	DI	Background	Wrwr al	Eco al	Unit
SED06395	ANTIMONY	2.50000	0.58000	N/A	409.00000	-	mg/Kg
SED06395	BIS(2-ETHYLHEXYL)PHTHALATE	490.00000	460.00000	N/A	19700000.00000	-	ug/Kg
SED06395	COPPER	28.50000	0.67100	18.06	40900.00000	-	mg/Kg
SED06395	FLUORIDE	4.72000	2.50000	N/A	61300000.00000	-	mg/Kg
SED06395	IRON	20000.00000	1.74000	18037	307000.00000	-	mg/Kg
SED06395	MANGANESE	406.00000	0.72000	365.08	3480.00000	-	mg/Kg
SED06395	MERCURY	15.50000	0.134	0.134	25200.00000	-	mg/Kg
SED06395	NICKEL	319.00000	3.46200	14.91	20400.00000	-	mg/Kg
SED06395	ZINC	319.00000	0.58000	73.76	307000.00000	-	mg/Kg

KEY

- Sampling location with concentration greater than WRW AL
- Sampling location with concentrations less than ALs

New Process Waste Line

UBC 371 and UBC 374

Storm Drain

Sewer

Paved area

Dirt road

Stream or ditch

Fence

Demolished Building

Standing Building



A horizontal scale bar with alternating black and white segments. It is labeled '100' at the left end, '0' in the middle, and '100 Feet' at the right end.

Scale = 1: 2,000

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:

RADMS

Prepared for:



File: W:/projects/2003/300-3/characterization Date: 07/21/03

Location	Std. n.	Std. n.	Analysis	Results	Unit	Cl	Ww. sl	Eso. al	Background
91K4-507	0.0000	0.0000	BARITE	77.20000	MG/G	58.00000	2440.0000	21.6	NA
91K4-507	0.0000	0.0000	BANATITE	747.00000	MG/G	68.00000	2440.0000	21.6	NA
91K4-507	0.0000	0.0000	BERNARDITE	63.00000	MG/G	58.00000	2440.0000	21.6	NA
91K4-507	0.0000	0.0000	CHROMIUM	31.90000	MG/G	20.00000	3480.0000	NA	15.940
91K4-507	0.0000	0.0000	COPPER	225.00000	MG/G	40.00000	3480.0000	NA	13.000
91K4-507	0.0000	0.0000	COBALT	14.00000	MG/G	20.00000	3480.0000	NA	13.000
91K4-507	0.0000	0.0000	HEX. NOL. 1,2,3,2-PHENE	180.00000	MG/G	40.00000	3480.0000	NA	13.000
91K4-507	0.0000	0.0000	HEX. NOL. 1,2,3,2-PHENE	360.00000	MG/G	715.00000	3480.0000	365.0000	NA
91K4-507	0.0000	0.0000	IRON	14.00000	MG/G	20.00000	3480.0000	NA	13.000
91K4-507	0.0000	0.0000	PLATINUM	35.00000	MG/G	22.00000	3480.0000	NA	13.000
91K4-507	0.0000	0.0000	PTINITE	875.00000	MG/G	58.00000	13.000000	46.402	46.402
91K4-507	0.0000	0.0000	ST. PHOSPHIT	715.00000	MG/G	31.00000	7150.0000	46.402	46.402
91K4-507	0.0000	0.0000	ST. PHOSPHIT	715.00000	MG/G	31.00000	7150.0000	46.402	46.402
91K4-507	0.0000	0.0000	VANADINUM	117.00000	MG/G	9.00000	30.000000	433	73.700

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Location	Stat. n	Std. n	Analyte	Result	Unit	Dt	Ww. All	Eco. All	Background
BZ-6-609	0.00000	0.50000	ARSENIC	25.0000	MG/KG	5/2000	22/2000	21/15	15/2000
BZ-6-609	0.00000	0.50000	CADMIUM	4.0000	MG/KG	5/2000	20/2000	--	15/2000
BZ-6-609	0.00000	0.50000	CHROMIUM	42.0000	MG/KG	5/2000	20/2000	--	15/2000
BZ-6-603	0.00000	0.50000	COPPER	1.40000	MG/KG	4/2000	6/600/2000	15/6000	15/6000
BZ-6-603	0.00000	0.50000	COBALT	0.10000	MG/KG	5/2000	15/2000	15/2000	15/2000
BZ-6-603	0.00000	0.50000	COPPER	4.10000	MG/KG	5/2000	15/2000	15/2000	15/2000
BZ-6-603	0.00000	0.50000	IRON	0.9900	MG/KG	5/2000	15/2000	15/2000	15/2000
BZ-6-603	0.00000	0.50000	LEAD	0.10000	MG/KG	5/2000	15/2000	15/2000	15/2000
BZ-6-603	0.00000	0.50000	NICKEL	1.8000	MG/KG	5/2000	15/2000	15/2000	15/2000
BZ-6-603	0.00000	0.50000	WOLFRAM	34.7000	MG/KG	3/1000	351/2000	351/2000	45/5000
BZ-6-603	0.00000	0.50000	ZINC	4.4000	MG/KG	3/1000	351/2000	351/2000	45/5000

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Location	Sbd. #	Sed. #	Analyte	Result	Unit	D ₁	Ww. #	Eco. #	Background
3245-005	6.50000	6.50000	BARLIUM	\$2.00000	MO/KG	94.00000	2940.00000	--	289.38
3245-006	6.50000	6.50000	BARLIUM	763.00000	MO/KG	94.00000	2940.00000	--	289.38
3245-005	6.50000	6.50000	COBALT	1.00000	PPM	10.00000	8.00000	1600	0.12
3245-006	6.50000	6.50000	COBALT	1.00000	PPM	10.00000	8.00000	1600	0.12
3245-005	6.50000	6.50000	CHROMIUM	5.31600	PO/G	1.67012	351.00000	1600	1.49
3245-006	6.50000	6.50000	CHROMIUM	4.45000	PO/G	2.21041	351.00000	1600	1.49
3245-005	6.50000	6.50000	U-238	4.60000	UNIT	3.10000	7750.00000	1600	68.49
3245-006	6.50000	6.50000	VANADIUM	46.00000	MO/KG	31.00000	7750.00000	1600	68.49

[illegible]

Location	Site no.	Soil n.	Analyte	Result	Unit	D	Wet n.	Ero n.	Background
BH-45-005	0.02000	0.50000	4-NITROBENZ	12.90000	MG/KG	6.00000	28.00000	1.0	10.0000
BH-45-005	0.02000	0.50000	4-NITROBENZ	12.90000	MG/KG	6.00000	28.00000	1.0	10.0000
BH-45-005	0.02000	0.50000	CHLOROBENZ	15.30000	MG/KG	2.00000	28.00000	1.0	10.0000
BH-45-005	0.02000	0.50000	CHLOROBENZ	15.30000	MG/KG	2.00000	28.00000	1.0	10.0000
BH-45-005	0.02000	0.50000	FLUORANTH	41.00000	MG/KG	41.00000	27.00000	0.0000	NA
BH-45-005	0.02000	0.50000	FLUORANTH	41.00000	MG/KG	41.00000	27.00000	0.0000	NA
BH-45-005	0.02000	0.50000	MONOMETH	369.75000	MG/KG	215.00000	36.00000	0.0000	365.0000
BH-45-005	0.02000	0.50000	MONOMETH	369.75000	MG/KG	215.00000	36.00000	0.0000	365.0000
BH-45-005	0.02000	0.50000	NITROBENZ	35.80000	MG/KG	20.00000	32.00000	0.0000	14.90
BH-45-005	0.02000	0.50000	NITROBENZ	35.80000	MG/KG	20.00000	32.00000	0.0000	14.90
BH-45-005	0.02000	0.50000	PERYLENE	294.00000	MG/KG	12.00000	29.00000	0.0000	49.0000
BH-45-005	0.02000	0.50000	PERYLENE	294.00000	MG/KG	12.00000	29.00000	0.0000	49.0000
BH-45-005	0.02000	0.50000	UACB	45.90000	MG/KG	3.00000	7.00000	0.0000	42.5000
BH-45-005	0.02000	0.50000	UACB	45.90000	MG/KG	3.00000	7.00000	0.0000	42.5000
BH-45-005	0.02000	0.50000	2,3-DIFORM	55.30000	MG/KG	9.00000	39.00000	0.0000	73.7000
BH-45-005	0.02000	0.50000	2,3-DIFORM	55.30000	MG/KG	9.00000	39.00000	0.0000	73.7000

[illegible]

Location	Shd	Soil	Soil	Analysed	Results	Units	DI	Www. sl	Eco sl	Background
B-145-014	0.00000	0.50000	0.50000	CHLORAMPHENICOL	714.00000	MG/KG	48.00000	2640.00000	2.16	141.200
B-145-014	0.00000	0.50000	0.50000	CHLORAMPHENICOL	31.00000	MG/KG	20.00000	296.00000	16.96	15.96
B-145-014	0.00000	0.50000	0.50000	CHLORAMPHENICOL	33.00000	MG/KG	20.00000	296.00000	16.96	15.96
B-145-014	0.00000	0.50000	0.50000	CHLORAMPHENICOL	32.00000	MG/KG	20.00000	296.00000	16.96	15.96
B-145-014	0.00000	0.50000	0.50000	CHLORAMPHENICOL	449.61000	MG/KG	2.96	3000.00000	---	183.71002
B-145-014	0.00000	0.50000	0.50000	CHLORAMPHENICOL	33.00000	MG/KG	20.00000	296.00000	16.96	15.96
B-145-014	0.00000	0.50000	0.50000	CHLORAMPHENICOL	33.00000	MG/KG	12.00000	3000.00000	---	14.414
B-145-014	0.00000	0.50000	0.50000	CHLORAMPHENICOL	33.00000	MG/KG	12.00000	3000.00000	---	14.414
B-145-014	0.00000	0.50000	0.50000	CHLORAMPHENICOL	33.00000	MG/KG	0.11524	8.65000	1900	0.584
B-145-014	0.00000	0.50000	0.50000	VANILICACID	74.00000	MG/KG	31.00000	7150.00000	45.564	45.564

[illegible]

Location	Sh. II	Sh. I	Analyte	Result	Unit	DL	View at	Err at	Background
174E-001	0.0070	0.5500	BENZYLANTHRACENE	73.0000	UG/G	45.0000	2645.0000	14.26	14.26
174E-002	0.0070	0.5500	BENZYLANTHRACENE	73.0000	UG/G	45.0000	3640.0000	80.0000	80.0000
174E-003	0.0070	0.5500	BENZYLANTHRACENE	73.0000	UG/G	45.0000	3640.0000	15.50	15.50
174E-004	0.0070	0.5500	BENZYLANTHRACENE	73.0000	UG/G	45.0000	2645.0000	13.50	13.50
174E-005	0.0070	0.5500	BENZYLANTHRACENE	73.0000	UG/G	45.0000	2645.0000	13.50	13.50
174E-006	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-007	0.0070	0.5500	COPOLYMER	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-008	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-009	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-010	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-011	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-012	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-013	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-014	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-015	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-016	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-017	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-018	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-019	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-020	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-021	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-022	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-023	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-024	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-025	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-026	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-027	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-028	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-029	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-030	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-031	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-032	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-033	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-034	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-035	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-036	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-037	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-038	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-039	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-040	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-041	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-042	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-043	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-044	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-045	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-046	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-047	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-048	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-049	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-050	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-051	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-052	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-053	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-054	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-055	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-056	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-057	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-058	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-059	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-060	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-061	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-062	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-063	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-064	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-065	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-066	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-067	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-068	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-069	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-070	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-071	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-072	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-073	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-074	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-075	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-076	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-077	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-078	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-079	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-080	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-081	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-082	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-083	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-084	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-085	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-086	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-087	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-088	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-089	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-090	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-091	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-092	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-093	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-094	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-095	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-096	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-097	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-098	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-099	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-100	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-101	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-102	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-103	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-104	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-105	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-106	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-107	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-108	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000	13.50	13.50
174E-109	0.0070	0.5500	CHENILLAC	31.0000	MG/KG	5.0000	3000.0000		

Location	Std. n.	Seed n.	Analyte	Result	Unit	DI	Wvw. al.	Eco. al.	Background
BV45-003	0.00000	0.00000	SARILUM	472.00000	MG KG	94.00000	20420.00000	--	269.38
BV45-003	0.00000	0.00000	COPPER	41.30000	MG KG	4.00000	40600.00000	--	38.21
BV45-003	0.00000	0.00000	U-235	0.28870	PG/G	0.13744	8.00000	1900	0.12
BV45-003	0.00000	0.00000	U-238	0.22480	PG/G	2.26006	351.00000	1600	0.17
BV45-003	0.00000	0.00000	ANALUM	715.00000	MG KG	3.10000	7150.00000	860	86.46

[illegible]

Location	Soil no.	Analyte	Result	Unit	DL	Wwt. %	Ecst. %	Background
R-45-021	0.0000	ARSENIC	11.80000	MC/G	0.0000	26.8	14.760	14.760
R-45-021	0.0000	CHROMIUM	41.80000	MC/G	0.0000	26.8	19.960	19.960
R-45-021	0.0000	NICKEL	1.40000	MC/G	0.0000	26.8	10.870	10.870
R-45-021	0.0000	COBALT	3.00000	MC/G	0.0000	26.8	10.870	10.870
R-45-021	0.0000	CHROMIUM	2140.0000	MC/G	0.0000	26.8	10.870	10.870
R-45-021	0.0000	METHYLENE CHLORIDE	1.40000	UG/G	0.0000	2330.0000	56.600	56.600
R-45-021	0.0000	CHLORINE	1.40000	UG/G	0.0000	2330.0000	56.600	56.600
R-45-021	0.0000	NICKEL	42.00000	MC/G	0.0000	25.400	15.410	15.410
R-45-021	0.0000	METHYLENE CHLORIDE	1.00000	UG/G	0.0000	25.400	15.410	15.410
R-45-021	0.0000	CHLORINE	1.00000	UG/G	0.0000	25.400	15.410	15.410
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	ARSENIC	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	NICKEL	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	COBALT	1.00000	MC/G	0.0000	1.0000	1.000	1.000
R-45-021	0.0000	CHROMIUM	1.00000	MC/G	0.0000	1.0000	1.000	1.000

Location	Shd. n.	Seed. n.	Analyte	React.	Unit	D ₁	W _{max}	Exp. al	Background
8-V4-002	0.00000	0.00000	BAR/LAM	6.20	MG/KG	58.00000	26462.00000	1000	141.260
8-V4-002	0.00000	0.00000	BAR/LAM	11.20	MG/KG	58.00000	26462.00000	1000	141.260
8-V4-002	0.00000	0.00000	CHIFFER	11.20	MG/KG	4.00000	40900.00000	1000	141.260
8-V4-002	0.00000	0.00000	CHIFFER	28.70	MG/KG	21.00000	40900.00000	1000	141.260
8-V4-002	0.00000	0.00000	INCELR	38.90	MG/KG	20.00000	41062.00000	1000	141.260
8-V4-002	0.00000	0.00000	INCELR	38.90	MG/KG	20.00000	41062.00000	1000	141.260
8-V4-002	0.00000	0.00000	STYCNAL	1.25	MG/KG	13.117	61062.00000	1000	44.940
8-V4-002	0.00000	0.00000	STYCNAL	1.25	MG/KG	13.117	61062.00000	1000	44.940
8-V4-002	0.00000	0.00000	PCG	1.34	MG/KG	13.117	61062.00000	1000	44.940
8-V4-002	0.00000	0.00000	PCG	1.34	MG/KG	13.117	61062.00000	1000	44.940
8-V4-002	0.00000	0.00000	PCG	45.00000	MG/KG	13.117	61062.00000	1000	44.940
8-V4-002	0.00000	0.00000	VANILLIN	0.00000	MG/KG	7150.00000	30500.00000	1000	45.560
8-V4-002	0.00000	0.00000	VANILLIN	0.00000	MG/KG	7150.00000	30500.00000	1000	45.560

Figure 4
Soil Sampling Results Greater Than
Background or Detection Limits
at IHSS Groups 300-3 and 300-4,
West Side

KEY

- Sampling location with concentration greater than the Ecological AL
- Sampling location with concentrations less than ALs

New Process Waste Line

UBC 371 and UBC 374

Storm Drain

Sewer

Paved area

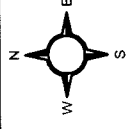
Dirt road

Stream or ditch

Fence

Demolished Building

Standing Building



Scale = 1: 2,600

State Plane Coordinate Projection

Colorado Central Zone

Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:

RADMS

Prepared for:



KAISER-HILL
COMPANY

2083500

2083000

2082500

2082000

2081500

2081000

2083500

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2082500

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36